Animal Welfare Information Center
Bulletin

Summer 1999
Vol. 10, No. 1-2
ISSN: 1522-7553

CONGRESS IN SESSION

106th CONGRESS

- **H.RES. 252 Expressing the condolences of the House on the death of the Honorable George E. Brown, Jr.**

Introduced July 16, 1999, by Sam Farr (D-California) which was considered and agreed to.

[Editor's note: Congressman Brown was instrumental in passage of several amendments to the Animal Welfare Act and was considered one of the foremost Congressional advocates for science funding.]

RESOLUTION

Expressing the condolences of the House on the death of the Honorable George E. Brown, Jr. Resolved, That the House has heard with profound sorrow of the death of the Honorable George E. Brown, Jr., a Representative from the State of California.

(Legislation cont'd p. 15)

ALSO IN THIS ISSUE...

USDA and Training	p. 6
PMU Ranching	p. 7
New AWIC Publications	p. 9
Non-animal Test Approved	p. 10
International News	p. 10
On-line Databases	p. 11
WWW on Assessment of Pain	p. 14
Position on Ear Cropping	p. 14
Announcements	p. 19
Grants	p. 23
Genetics and Animal Welfare	p. 24

Wildlife Research and the IACUC

by
Brad Williams, D.V.M.
Campus Veterinarian
University of Idaho
Moscow, Idaho

[Editor's note: USDA is in the process of revising the definition of field study. The final notice should be published sometime in fall 1999.]

The Institutional Animal Care and Use Committee (IACUC) is challenged with many duties under the Animal Welfare Act (AWA) and Public Health Service (PHS) Policy. Because of the diverse number of situations in which research animals may be used, regulatory agencies have appropriately shifted much responsibility for ensuring adequacy of animal care to IACUCs. The *Guide for the Care and Use of Laboratory Animals (Guide)* and the *Guide For the Care and Use of Agricultural Animals in Research and Teaching (Ag Guide)* provide both general guidelines and specific variables for animal care and housing for traditional laboratory and farm animal species, respectively. Requirements for housing wildlife research animals (fish, birds, reptiles, amphibians, and wild mammals) and their use in research, however, are necessarily much less specific. The tens of thousands of species of fish, birds, amphibians, reptiles, and mammals make specific guidelines regarding animal care difficult at best. Additionally, biological requirements for many species under study are not only unknown, but are often the subject of the study itself.

Each country, State, province, or local authority may have its own requirements that must be followed. The IACUC must apply the general principles contained in the AWA, the *Guide,* the *Ag Guide,* and the American Veterinary Medical Association (AVMA) Panel on Euthanasia to wildlife studies. The web sites of the United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS) and the Office for Protection from Research Risks (OPRR) contain many helpful policy interpretations and clarifications. Many professional societies and organizations have produced guidelines for the use of species with which they commonly deal. These are excellent supporting references for use by IACUCs to generate institution specific policies. Using these guidelines also leads to consistency in animal care across institutions, easing and improving investigator compliance as institutional affiliation changes. Clear written policies and procedures reviewed by wildlife investigators and approved by the IACUC and the Institutional Official (IO) are essential in ensuring compliance by all individuals. Institutional policies should always be designed to obtain the desired outcome of both the PHS Policy and the Animal Welfare Act, that is, humane care of all animals. Veterinarians and scientists trained with the species and procedures under review must always be involved in development of IACUC policies.

Population dynamics, observational behavioral studies, disease pathogenesis and management, and effects of potentially negative environmental factors on wildlife populations are all common topics addressed in wildlife research at our institution. These all involve varying aspects of potential harm to animals being used in a research project. This article explores some of the challenges the attending veterinarian, the IACUC, and the investigator face when conducting wildlife research.

When do I need to have IACUC review?

The most common question our IACUC receives from new investigators is what procedures require IACUC review? Several factors were considered when our IACUC developed our policy: the species and age of subject being used, the funding agency for the project, the affiliation of the individual with our institution, and the importance of animal care and use at our institution.

The point in development at which oviparous, ovoviviparous, and viviparous species become regulated animals had to be decided. The determination for viviparous was based on that of the AWA, at birth from the maternal animal. OPRR has ruled that birds become regulated animals once they have hatched from the egg. These concepts are easily transferred to ovoviviparous species, but less clear with many oviparous species. For fish, our IACUC has determined this same stage of development to be the "buttoned-up" stage, or when the embryo has fully absorbed the yolk sac and must forage on its own. Other IACUCs may choose an earlier point. As a result of our definition of when an animal becomes regulated, work with gametes and early embryos in fish is not regulated unless the animal is allowed to develop to or beyond the buttoned-up stage.

In enforcing the AWA, APHIS requires IACUC review of *all projects which materially alter the behavior of animals under study.* The AWA only applies to warm-blooded vertebrate wildlife species. It considers simple, noninvasive capture and release procedures to not be covered under the AWA, and thus does not require IACUC review. Examples falling in this category might include measuring variables such as weight and length, sampling blood, and reviewing other general health indicators. Some forms of animal identification, such as tattoos, ear tags, and radio-collars, would also fall into this category. Any invasive procedures, such as surgical implantation of a transmitter, or housing animals for periods greater than 12 hours before being released, require IACUC review, approval, and oversight.

PHS Policy also requires IACUCs to follow AWA requirements. PHS Policy applies to all PHS conducted or supported activities involving live vertebrate animals. In addition, the wording of an institution's Assurance may determine when IACUC review is required. Institutions must specify what projects conducted by them are to be covered by their Assurance. Because the University of Idaho has many production agriculture and wildlife research projects, our Assurance limits its coverage to PHS-funded projects. However, if a non-PHS-supported activity affects a PHS-supported activity, then both projects must comply with the policy. According to a published interpretation of PHS Policy, "only when an institution can document that the animal care and use program funded by a non-PHS source is entirely separate and distinct, physically and programmatically, from PHS-supported activities will OPRR consider its exclusion from the Institutional Assurance."

It would be highly unlikely for a wildlife project conducted in the field to be funded by PHS. However, institutions may voluntarily require IACUC review for field projects to prevent the appearance of a double standard or that they are only performing IACUC review because it is legally required. To ensure appropriate care and use of all animals with which the University of Idaho is involved, our IACUC currently requires review and oversight of all projects involving University-owned animals or performed by University personnel, regardless of who owns the animals, where they are housed, who funds the project, or whether they are reviewed by another IACUC. This is a common practice at academic institutions and is explained in our required introductory training sessions. This does add some paperwork for investigators and the IACUC, which understandably is not always appreciated.

Another factor investigators must consider is the journal(s) in which the investigator intends to publish his/her findings. Regulatory agencies and local IACUCs may not require protocol review, but more journals are doing so before accepting a manuscript for publication. A written statement that such review has occurred has been common practice in biomedical research for several years and has spread to many agricultural publications. This concept is also beginning to be recognized as an important process in wildlife publications. It is the investigator's responsibility to ensure that IACUC review and approval takes place when it is required by someone other than the IACUC, such as for publication.

Special Factors in the IACUC Review Process

Many field studies reviewed by our IACUC are conducted in remote wilderness areas, either in the State, surrounding States, or at greatly distant sites. The committee relies on descriptions of the site by the investigator or knowledge of the study areas by committee members. Animal capture, handling, housing, surgical, and euthanasia procedures are evaluated in light of the location and local environmental conditions. The terrain, plants and animals, day and night temperatures, predator/prey relationships, other species that may be inadvertently captured, and accessibility to the site are all considered. If significant variations from the AWA or PHS Policy are being sought, the investigator must justify the deviation. If the IACUC believes the request for deviation to be justified, a "variance" or "waiver" would be sought from the governing regulatory authorities before protocol approval by the IACUC. Planning ahead cannot be stressed enough when working with animal subjects that may only present sampling opportunities seasonally.

The committee will also evaluate potential hazards for the personnel working on the project including capture equipment used, handling of the species involved, prevention of zoonotic diseases, bite wounds, scratches, etc. When samples alone are provided to an investigator from another institution, the conditions of collection and care of the animals from which the samples originated are evaluated by the IACUC through a written description in the protocol.

Each protocol is evaluated on an individual basis weighing the relative benefits and risks involved. The same principles are applied to all vertebrate animals. We do not require protocol review for invertebrate species, but would apply the same considerations if an investigator were to request review of an invertebrate project. External funding agencies are relied on for review based on scientific merit, but each project's goals are evaluated based on its relative merit to the species involved and society. This is especially important when dealing with endangered or threatened species, when potentially painful procedures are involved, and when the local ecosystem may be compromised.

Investigator Training

All personnel must complete our IACUC training program for protocol approval to occur. Depending on the procedures listed in a protocol, investigators and their staffs may be re-

quired to complete additional training requirements. Written certification by qualified independent organizations, such as Safe Capture International, Inc., and qualified state or national wildlife veterinarians or other employees is accepted. When an independent certifier is not available, investigators must demonstrate competency to, or be trained (in skills such as surgical techniques) by the attending veterinarian or other qualified personnel for the procedures they wish to perform. This can often be done by performing/teaching the procedure on a related species in captivity.

Our occupational health program provides training on prevention of zoonotic diseases and immunization for tetanus. Those individuals working with wild carnivores may also receive rabies prophylaxis. All personnel who may come in contact with Hantavirus must complete Hantavirus prevention training including the use of a HEPA-filtered respirator. When venomous animals are being dealt with, investigators must keep on hand appropriate antitoxins. Protocols must be designed to limit the number of individuals exposed to potentially hazardous animals and materials. Investigators who have completed our IACUC training program are often delegated to provide training for nonaffiliated field personnel that are working with animals on an approved project.

Capturing Wild Animals

Almost all procedures conducted with wildlife require capture and use permits. IACUC approval is not granted until a copy of all required permits has been provided. The means of capture, the location in which captures are to be performed, the target species, the numbers of animals, the procedures which can be performed on the animals once captured, who can perform the capture and animal procedures, and the ultimate disposition of the animals as specified in various permits must be compatible with the information presented in animal care and use protocols.

The IACUC is staffed with one faculty member, and often two, with expertise in wildlife research and regulations. If there is any uncertainty regarding the need for permits, the IACUC will check with the Idaho Department of Fish & Game and the Idaho Division of Animal Industries. When animals or animal tissues are being imported, residents of the United States should consult with the United States Fish & Wildlife Service (USFWS), Department of the Interior (for Convention on International Trade in Endangered Species of Wild Fauna and Flora compliance issues), USDA-APHIS (http://www.aphis.usda.gov)

Researcher removing a deer mouse from a box trap into a plastic bag prior to weighing and release. The trap contains a nestlet for bedding, and grain.

Photos courtesy of M. Kreger

Wearing thick leather gloves, the researcher removes the mouse from the bag and weighs it. The mouse is suspended by the base of the tail by a padded clamp and released seconds later into the wild.

(for potential animal pathogens), and the Centers for Disease Control and Prevention (http://www.cdc.gov) (CDC, importation of primates and potential pathogens of human beings) for importation policies at the time of their study. The USFWS's web site (http://www.fws.gov) contains a complete listing of State and Federal wildlife handbooks.

Meeting Requirements for Housing and Inspection of Wildlife Animals

Field projects may occur in remote wilderness areas, fish hatcheries, dams, privately owned facilities, or even facilities outside of the country. The AWA and PHS policy require all study areas and facilities used to hold AWA-covered animals for longer than 12 hours to be inspected not less than every 6 months by the IACUC. As specified in the AWA, animal areas containing free-living wild animals in their natural habitat need not be included in such inspection. By virtue of the PHS Policy definition of "animal facility," animals included under PHS regulations (but not the AWA) must be held for 24 hours or longer in study areas (satellite facilities) or be surgically manipulated in order for the site to require inspection. If an institution chooses to use less than 24 hours for all study areas, it should be reflected in its Assurance document.

It is often not practical or economically feasible to visit each of these remote sites. Since the University of Idaho has facilities throughout the State separated by 300-500 miles, we have added an ad hoc IACUC member who inspects facilities with the attending veterinarian at distant sites. Any committee member who wishes to participate in an inspection should not be prohibited. Waivers may be applied for with both PHS and USDA for special situations where site visits are impractical. IACUCs may also require a signed memorandum of understanding with the responsible authorities at associated facilities. Such agreements should not only address the care and use of animals, but the training required for animal care staff at these facilities, all budget items related to housing the animals and staffing the facility, and ownership of the animals for animal census reporting purposes and disposition of animals at the end of the project.

Wild caught animals may be brought into permanent facilities on occasion. The conditions for bringing the animals in are specified by the attending veterinarian for the facility. Serologic screening for diseases of concern may be required. Factors considered include the current disease status of animals in the facility, the type of housing available in the facility (filtered exhaust air, isolation cages, barriers, etc.), the disease status of the animals entering the facility, the biological requirements of and temperament of the animals to be brought into the facility, and qualifications of animal care staff at the facility. Investigators, facility managers, and veterinarians must be creative in developing environments which meet the biological needs of the animal and regulations. With some species, deviations from regulations may be required to meet the biological needs of the animals. Waivers from USDA and/or the NIH, Office for Protection from Research Risks should be sought before protocol approval.

Unless an animal is an endangered or threatened species, its return to the wild is usually discouraged to protect the existing population from diseases acquired unknowingly in captivity. The disposition of animals is normally specified in capture permits, which have ultimate control.

Refinement of Protocols

Because of the cost and difficulty in acquiring wild animals, investigators always try to obtain as much information from one animal as possible. A museum of dead animals and animal parts is maintained with representative samples of species being used in research. Museum specimens are for use in undergraduate and graduate courses, public education programs, and possibly in future research projects. These specimens are often animals euthanized or killed during another project, rather than just for use in the museum. Samples may also be taken and used for karyotyping in other population studies.

Identification and capture techniques must always be the least invasive possible. Requested animal identification methods are evaluated using the same criteria as the investigator most likely used when designing the protocol. Does the individual animal need to be identified, or just as a member of a group? How long does the identification need to remain in place? Will animals be released after identification and identified from a distance, or is recapturing necessary? How aggressive is the species of animal(s) being dealt with? What is the likelihood and necessity of being able to recapture the same animal? How painful is the method of identification? These are all concerns IACUC members consider and weigh against the benefits of the research. Tattoos, hair clipping, radio-collars, ear tags, and other noninvasive methods would be preferred over surgical methods such as toe clipping. The same criteria for surgical procedures used in biomedical research would be applied to wildlife situations. Unless scientifically justified in the protocol, the procedure would need to be performed aseptically and under anesthesia with postoperative analgesics administered.

Live trapping, such as mist nets and Sherman traps, is preferred. The frequency and difficulty of checking live traps, when traps are set and closed, protection from adverse environmental conditions and predators, and provisions for food and water for infrequently checked traps are all considered. Snap traps and other lethal traps may be approved when indicated. The investigator would need to justify the use of lethal traps through the scientific design of the protocol or the elimination of potential health risks to the investigator. This would include health risks associated with removing animals from traps and the euthanasia process. Protocols should also include provisions for dealing with accidental/incidental injuries to animals in traps.

The euthanasia method used must be in compliance with the AVMA Panel on Euthanasia, unless justification is provided in the protocol and approved by the IACUC. Volatile gases in closed containers are preferred in habitats where plague, Hantavirus, or other parasite or aerosol transmitted diseases are likely. Cervical dislocation without anesthesia must be justified in the protocol. Gun shot of an appropriate size for the species and by qualified personnel is accepted when other alternatives are logistically prohibitive. An example would be the capture and euthanasia of large ungulates, such as deer and elk, that will be euthanized as part of a project in very remote locations and steep terrain.

Summary

IACUCs are faced with difficult challenges in striking a balance between animal well-being and scientific discovery with regards to wildlife research. The unique environments in which wildlife are found, their biological characteristics, the

safety of personnel, and appropriate regulations must all be considered when performing and monitoring wildlife research. A joint effort of cooperation and discovery is essential between investigators, IACUCs, and regulatory agencies to overcome these challenges.

References

1. Amphibians. *In*: Guidelines for the breeding, care and management of laboratory animals. 1974. Institute for Laboratory Animal Resources. National Academy of Sciences, Washington, D.C.
2. Amphibians as laboratory animals. DeNardo, D. 1995. ILAR J. 37: 173-181.
3. Animal Welfare Act. United States Department of Agriculture, Animal Plant and Health Inspection Service, Animal Care. http://www.aphis.usda.gov/ac/awainfo.html
4. Animal Welfare Information Center. Legislation, Regulations, Policies, and Guidelines. http://www.nal.usda.gov/awic/legislat/awicregs.htm
5. Canadian Council on Animal Care. http://www.ccac.ca/index.htm
6. Center for Disease Control and Prevention. http://www.cdc.gov
7. Convention on International Trade in Endangered Species of Wild Fauna and Flora. http://www.wcmc.org.uk/CITES/english/index.html
8. Field research guidelines: impact on animal care and use committees. Orlans, F.B. 1988. Scientists Center for Animal Welfare, Greenbelt, Maryland.
9. Fish, p. 1-10. In: Guide to the care and use of experimental animals, vol 2., Ferguson HW. 1984. Canadian Council on Animal Care, Ottawa, Ontario, Canada.
10. Fishes: Guidelines for the breeding, care, and management of laboratory animals. 1974. National Academy of Sciences, Washington, D.C.
11. Frequently Asked Question about the Public Health Service Policy on Humane Care and Use of Laboratory Animals. Summer/Fall 1993. ILAR News 35(3-4): 47-49. http://www.nih.gov/grants/oprr/ilar93.htm
12. Frequently Asked Questions about the Public Health Service Policy on Humane Care and Use of Laboratory Animals. 1997. Potkay, Stephen, Nelson Garnett, John G. Miller, Cynthia J. Pond, Dennis J. Doyle. Contemporary Topics: 36(2):47-50.
13. Guide for the Care and Use of Laboratory Animals. Institute of Laboratory Animal Resources, Commission on Life Sciences, National Research Council. National Academy Press, Washington, D.C. 1996. http://www.nap.edu/readingroom/books/labrats
14. Guide For the Care and Use of Agricultural Animals in Agricultural Research and Teaching. Federation of Animal Science Societies, Savoy, Illinois. First Revised Edition. January 1999. http://www.fass.org
15. Guidelines for the care and use of fish in research. DeTolla, L.J., S. Srinivas, B.R. Whitaker, et al . 1995. ILAR J. 37:159-173.
16. Guidelines for the use of fishes in field research. Fish J. 13(2): 1-14. 1987. American Society of Ichthyologists and Herpetologists, American Fisheries Society, American Institute of Fisheries Research Biologists. http://www.utexas.edu/depts/asih/pubs/fishguide.html
17. Guidelines for the use of live amphibians and reptiles in field research. 1987. American Society of Ichthyologists and Herpetologists, The Herpetologists, The Herpetologists' League, and Society for the Study of Amphibians and Reptiles. J. Herpetology (Suppl) 4:1-14. http://www.utexas.edu/depts/asih/pubs/herpcoll.html
18. Guidelines to the Use of Wild Birds in Research. Gaunt, Abbot S. and Lewis W. Oring. http://www.nmnh.si.edu/BIRDNET/GuideToUse
19. Handling Fish Fed to Fish-Eating Animals. A Manual of Standard Operating Procedures. June 1998. United States Department of Agriculture. Agricultural Research Service. National Agricultural Library, Beltsville, Maryland. http://www.aphis.usda.gov/ac/awainfo.html
20. Nonavian reptiles as laboratory animals. Greene, H.W. 1995. ILAR J. 37: 182-186.
21. Office for Protection from Research Risks. http://grants.nih.gov/grants/oprr/library_animal.htm
22. Protocol Review: So Much Work, So Little Time. 1998. 27(8)16-18. Jerald Silverman, DVM. Lab Animal. http://www.labanimal.com/col/prot0898.htm
23. Public Health Service Policy. Office for Protection from Research Risks. Division of Animal Welfare. National Institutes of Health. http://grants.nih.gov/grants/oprr/phspol.htm
24. Recommendations for the care of amphibians, and reptiles in academic institutions. 1991. Institute for Laboratory Animal Resources. National Academy of Sciences, Washington, D.C.
25. Recommendations for the Care of Amphibians and Reptiles in Academic Institutions. F. Harvey Pough. 1992. National Academy Press, Washington, D.C. http://netvet.wustl.edu/species/reptile/pough.txt
26. Safe Capture International, Inc. http://www.safecapture.com
27. The care and use of amphibians, reptiles, and fish in research. 1992. Schaeffer, D.O., K. M. Kleinow, L. Krulisch (eds.). Scientists Center for Animal Welfare, Greenbelt, Maryland.
28. The Public Health Service Responds to Commonly Asked Questions. Issues for Institutional Animal Care and Use Committees (IACUCs). Fall 1991. ILAR News 33(4):68-70. http://grants.nih.gov/grants/oprr/ilar91.htm
29. United States Department of Agriculture, Animal and Plant Health Inspection Service. http://www.aphis.usda.gov/
30. United States Fish and Wildlife Service. http://www.fws.gov
31. 1993 Report of the AVMA Panel on Euthanasia. January 15, 1993. JAVMA, 202(2):229-49. http://www.nal.usda.gov/awic/pubs/noawicpubs/avmaeuth.htm

When the USDA Veterinary Medical Officer Looks at Your Training Program

by
Ed Slauter, D.V.M.
Veterinary Medical Officer
APHIS/Animal Care
United States Department of Agriculture

This paper was originally presented at the 1998 Laboratory Animal Welfare Training Exchange conference held in St. Louis, Missouri.

The Animal Welfare Act mandates that each research facility shall provide for the training of scientists, animal technicians, and other personnel involved with animal care and treatment in the facility.

Title 9 - *Code of Federal Regulations* - Chapter 1, Subchapter A - Animal Welfare §2.32 gives specific requirements for training as follows:

(a) It shall be the responsibility of the research facility to ensure that all scientists, research technicians, animal technicians, and other personnel involved in animal care, treatment, and use are qualified to perform their duties. This responsibility shall be fulfilled in part through the provision of training and instruction to those personnel.

(b) Training and instruction shall be made available, and qualifications of personnel reviewed, with sufficient frequency to fulfill the research facility's responsibilities under this section and §2.3 1.

(c) Training and instruction of personnel must include guidance in at least the following areas:

(1) Humane methods of animal maintenance and experimentation, including:

(i) The basic needs of each species of animal;

(ii) Proper handling and care for the various species of animals used by the facility;

(iii) Proper pre-procedural and post-procedural care of animals; and

(iv) Aseptic surgical methods and procedures.

(2) The concept, availability, and use of research or testing methods that limit the use of animals or minimize animal distress.

(3) Proper use of anesthetics, analgesics, and tranquilizers for any species of animals used by the facility.

(4) Methods whereby deficiencies in animal care and treatment are reported, including deficiencies in animal care and treatment reported by any employee of the facility. No facility employee, committee member, or laboratory personnel shall be discriminated against or be subject to any reprisal for reporting violations of any regulation or standards under the Act,

(5) Utilization of Services (e.g., National Agricultural Library, National Library of Medicine) available to provide information;

(i)On appropriate methods of animal care and use;

(ii) On alternatives to the use of live animals in research;

(iii) That could prevent unintended and unnecessary duplication of research involving animals; and

(iv) Regarding the intent and regulation of the Act.

The IACUC of each research facility is charged with the responsibility of reviewing on a semi-annual basis the research facility's entire program for humane care and use of animals. A vital component of every program is the training of all personnel involved in animal care, treatment, and use. The IACUC must determine that all personnel conducting procedures on animals being maintained or studied are appropriately qualified and trained in those procedures.

The USDA veterinary medical officer, when inspecting a research facility, has the challenging task of evaluating the facility's overall training program. This evaluation process should involve asking the following questions:

- Is training and instruction available to all personnel involved in animal care, treatment, and use?
- Does the training program include guidance in all areas listed in §2.32 - Personnel qualifications of the regulations?
- Is there adequate documentation of qualifications and training of personnel?
- Has the IACUC been provided sufficient documentation for it to fulfill its tasks of reviewing qualifications and training of all personnel involved in all proposed or ongoing activities?
- Does the semi-annual program review of animal care and use include personnel qualifications and training?

- Has there been input and oversight by the attending veterinarian toward an effective training program?
- Are procedures being adequately monitored to ensure competency in situations such as new or inexperienced personnel?
- How does the facility assess training needs of personnel on an ongoing basis?
- Is there a training program for the IACUC members, especially the non-affiliated member?
- Are there written guidelines and training for animal pain or distress assessment that is relevant to the research work at the facility?
- Are investigators adequately training on how to conduct and document a search for alternatives to painful or distressful procedures?
- Have protocols been developed for animals being used for procedure training for technicians or investigators?

A responsible training program should be in place at each research facility. Each training program may vary from one facility to another depending on the type of research being conducted and the needs of the facility. When a VMO reviews a training program, professional judgment is critical. Documentation is important, but the "results" of a training program are the primary consideration. ■

PMU Ranching Demonstrates Benefits of Self-Regulation

by
Norman K. Luba
North American Equine Ranching Information Council
Louisville, Kentucky

The History of PMU Ranching

Since 1941, the estrogens in pregnant mares' urine (PW) have been used to produce a leading estrogen replacement therapy prescribed to millions of women for the treatment of menopause and the management of osteoporosis. PMU ranches, located in the Prairie Provinces of Canada and in North Dakota, are primarily family owned and operated farms that are independently contracted to provide the raw material needed to manufacture this prescription medication. Unfortunately, PMU ranching has failed to receive the level of recognition that it deserves, largely because it was little known before a group of animal activists, opposed to all uses of animals, campaigned against it.

PMU Ranching: Continuous Improvement and Innovation

Today, more than 400 experienced horse breeders in Canada and North Dakota are involved in PMU ranching and are responsible for the care, management, and breeding of the horses whose estrogen goes into the production of this important medication.

During its development, PMU ranching has become a model of self-regulation in the agricultural industry, using a system of extensive checks and balances that ensure ranchers strive for the highest standards of practice rather than simply abiding by baseline laws and regulations. At the same time, PMU ranchers have continually sought to increase equine care knowledge so that PMU ranching practices can be state of the art.

For example, PMU ranchers have supported several equine behavioral research projects at leading veterinary schools designed to provide management recommendations that may be applied not only to the PMU practices, but also to the equine industry at large.

PMU ranchers have also endeavored to identify the best veterinary minds and equine experts available, in order to objectively and fairly review the industry and its management practices. Organizations including the American Association of Equine Practitioners (AAEP), the Canadian Veterinary Medical Association (CVMA), and the International League for the Protection of Horses (ILPH) were invited to assess the industry and provide input and guidance for the future health and welfare of the horses under our stewardship. These organizations were overwhelmingly supportive of our programs and the system of checks and balances that govern PMU ranching.

It is particularly important to note that virtually every knowledgeable equine professional who has been involved with PMU ranching has recognized the outstanding care given to these horses. As with any industry, improvements can be, and always are being, made. However, from a management standpoint, the model of self-regulation and incentive-based improvement directives used in this industry is one that has been remarkably successful and can be replicated in many other agricultural and commercial enterprises.

Checks and Balances Ensure High-Quality Care for Horses

PMU ranching has more checks and balances to ensure animal care and welfare than virtually any other livestock industry, making it one of the most regulated and closely inspected equine-related activities in the world.

Contract Approval and the Code of Practice

All ranches contract independently with Wyeth-Ayerst Laboratories to provide the estrogens in PMU. Before receiving a contract, all ranching facilities are examined and approved by company inspectors. PMU ranchers are contractually obligated to adhere to the *Recommended Code of Practice for the Care and Handling of Horses in PMU Operations*, a document that sets the standard for all ranch procedures. The Code was developed in 1990 to codify previously adopted ranching practices. Company inspectors, agriculture/equine specialists, and veteri-

Mares wear a loose-fitting, non-invasive, flexible, lightweight rubber collection pouch specially designed to be nonirritating.

narians all refer to the Code's guidelines when inspecting or reviewing PMU ranches.

"The PNW Code is the most visible, the most used, and the most complied with, of all the Codes of Practice for farm animals."

- Honorable Harry J. Enns, Minister of Agriculture, Manitoba, 1996

Multiple Levels of Inspection

PMU ranches undergo state and provincial reviews conducted by equine welfare experts.

LEVEL 1 - Pharmaceutical Company Field Inspectors

Wyeth-Ayerst employs eight field inspectors, two assistant supervisors, and one supervisor who inspect ranches at monthly intervals, throughout the entire year. The field inspectors record and document their findings and report to the Managing Veterinarian for review and analysis.

LEVEL 2 - Veterinary Herd Health Review Program

Broodmares graze throughout the late spring, summer, and early fall with their quality foals.

PMU ranchers' contracts require three herd health reviews on each farm during each collection season by independent, practicing veterinarians. Thus, veterinary care on PMU ranches exceeds the norm for the U.S. "household-owned" horse population, as reported by the American Veterinary Medical Association (AVMA), Center for Information Management in their 1997 report. In contrast to the fact that 100 percent of PMU ranches are reviewed by a veterinarian at least three times during the course of a year, the AVMA reported that more than 40 percent of U.S. "household-owned" horses did not receive a visit from a veterinarian.

The herd health review program was developed in conjunction with, and is monitored by, a committee of I I individuals; eight of those being equine veterinarians officially appointed by the Alberta, Manitoba and Saskatchewan Veterinary Medical Associations and the North Dakota Board of Animal Health. There are more than 90 independent veterinarians participating in the herd health review program.

LEVEL 3 - Open Access by Provincial and State Veterinarians

Veterinarians from the agriculture departments in Manitoba, Saskatchewan, Alberta, and North Dakota also have access to the ranches, and PMU ranchers welcome unannounced spot inspections or simple visits from these experts. Under the [Manitoba] Animal Care Act, authority for the investigation of public concerns regarding animal neglect, abuse, or cruelty is vested in the Veterinary Services Branch of Manitoba Agriculture. Department staff have the authority to investigate complaints. Similar authorization exists for the Saskatchewan Society for the Prevention of Cruelty to Animals (SPCA), the Alberta SPCA, and, in North Dakota, under the North Dakota Century Code Chapter 36-21.1. During the past 4 years, there has only been one minor complaint filed in any of these areas against a PMU operator, and it was immediately resolved.

LEVEL 4 - Assessment by International Veterinary Experts

An international team of equine experts, consisting of veterinary representatives from the AAEP, CVMA, and IRPH, were invited to review PMU ranches during the 1996-97 collection season to observe the health and welfare of the horses. A consensus report was produced in May 1997, and is available. To quote from the conclusion of that report regarding PMU ranching's response to the activist campaign: "Generally, the horses are very well-cared for. The ranchers and the company have responded in a progressive and proactive manner to both professional and public interests. Observations for improvement have been taken seriously and continue to be acted upon by Wyeth-Ayerst and the PMU ranchers. The public should be assured that the care and welfare of the horses involved in the production of an estrogen replacement medication is good, and is closely monitored."

LEVEL 5 - Guidance by Leading Equine Industry Experts

In addition to the system of checks and balances in place, some of North America's leading equine experts oversee the programs, research, and activities pertaining to PMU ranching. The Equine Management Group, established at the request of Wyeth-Ayerst and the ranchers, prioritizes scientific/educational goals and advises the company's veterinarians on protocol development and study design, approves all final reports, and reviews operations at the company's training and research facility. The Equine Advisory Board provides scientific expertise in the areas of nutrition, exercise physiology, internal medi-

cine and behavior to the Equine Management Group. Both groups include leading experts from around North America and equine veterinary specialists from major universities.

Marketing Incentive Programs

Finally, to complement PMU ranching's checks and balances, the North American Equine Ranching Information Council (NAERIC), the association that represents the PMU ranchers, has established several initiatives that help reward ranchers for producing outstanding animals. While programs to ensure the breeding of high-quality horses are not unique to PMU ranching, the level of commitment to bolster these initiatives is noteworthy. Consider as an example, the richest 2-year-old pleasure futurity in Canada, the Manitoba 50/50 Super Horse Event, with PMU ranch bred horses being named champions the last 3 out of 5 years, and the quality of horses, "the best kept secret in North America," becomes evident.

This is a typical PMU barn setup which places horses in a head-to-head configuration allowing for social interaction.

Through NAERIC, the following programs have been instituted to ensure that PMU ranching is able to realize its full potential and that all those involved receive the appropriate benefits that this industry has to offer:

- Breeding Enhancement Program: A program designed to increase the use of Thoroughbred stallions in crossbreeding with mares to produce valuable sport horses;
- NAERIC Incentive Program: A $1 million incentive program that matches dollar for dollar, awards, breeder incentives, and other purses;
- NAERIC "Super Ranch Horse" Classic and NAERIC "Super Team" Competition: Events created to bring entertainment value to horse competitions while highlighting the performances of our horses;
- Mounted Police Horse Program. Part of an extensive program dedicated to finding new markets for PMU bred horses, wherein these animals are donated to police forces nationwide for use as mounted police horses.

Conclusion

Over the past 5 or 6 years, animal activists have attacked this little-known segment of the equine ranching community in hopes of preventing these horse breeders from continuing their work. Despite these challenges, the industry has both survived and flourished. As PMU ranchers work to demonstrate to the public that their practices are sound and the levels of care and welfare on PMU ranches are high, an exceptional system of self-regulation has emerged. The fact that many knowledgeable and informed veterinary and animal welfare organizations have inspected the ranches and issued highly favorable reports is a testament to this self-regulation and PMU ranching's incentive-based management practices.

With the continued input of veterinarians and other equine professionals, PMU ranching remains an outstanding partnership between horse breeding and women's health care, and it will continue to set the care, welfare, research, and continuous improvement standards for other aspects of equine ranching.

Norman K. Luba is Executive Director of the North American Equine Ranching Information Council (NAERIC), a non-profit association representing horse breeders and ranchers in North America engaged in the collection of PMU. NAERIC's mission is to provide education and research information to its members as well as factual and accurate information about this segment of the ranching industry to the horse industry and the general public. http://www.naeric.org ■

New Publications from AWIC

- Information Resources for Institutional Animal Care and Use Committees—AWIC Resource Series No. 7
- Information Resources for Livestock and Poultry Handling and Transport—AWIC Resource Series No. 4

Science Panel Endorses New Non-animal Test To See if Chemicals Will Burn, Corrode Skin and Eyes

National Institute of Environmental Health Sciences PR # 10-99
June 22, 1999

For the first time, a new federally sponsored panel of scientists has endorsed the use of a non-animal test to determine for safety and regulatory purposes and for labeling whether a chemical is likely to burn or corrode human skin.

The new test can often replace a method in which a chemical or chemical mixture is placed on the intact skin of a laboratory animal.

The results of the review of the new non-animal test were announced today by the National Institute of Environmental Health Sciences, the National Toxicology Program and 13 other federal agencies that support the Interagency Coordinating Committee on the Validation of Alternative Methods, an organization established in 1997. This ICCVAM-sponsored scientific review, provides a basis for decisions by the regulatory agencies about how the test will be used in their decision making.

The panel said the new method can fully replace the use of animals for testing corrosiveness and irritation in some cases, while in others, only a single animal is required to confirm a chemical's corrosiveness.

William Stokes, D.V.M., the National Institute of Environmental Health Sciences' associate director for animal and alternative resources, said, "Current regulations usually require three animals for each chemical that is evaluated for skin corrosivity and dermal irritation. Since there are more than two thousand chemicals introduced each year, this could result in a considerable reduction in the use of laboratory animals to identify corrosives." Last year, Dr. Stokes was recognized by the Humane Society of the United States under its Russell and Burch Awards program for his leadership in advancing alternative methods of toxicity testing.

Skin corrosiveness testing is conducted to ensure that chemicals and products are properly labeled to alert consumers and workers to take precautions to prevent chemical burns to the skin and eyes.

In the new test, developed under the trade name Corrositex, a chemical or chemical mixture is placed on a collagen matrix barrier that serves as a kind of artificial skin. Once it penetrates the barrier, the chemical causes a color change in a liquid detection system composed of pH indicator dyes. The time it takes for a test chemical to penetrate the barrier and produce a color change in the detection system is compared to a classification chart to determine corrosivity.

In order to develop a scientific consensus on the usefulness and limitations of the new test, panel members evaluated all available information and data to determine the extent to which each of the ICCVAM criteria for validation and acceptance of new test methods was addressed.

Panel chair Robert Scala, Ph.D., said, "We concluded that Corrositex may be used as part of a tiered testing strategy for assessing the dermal corrosive potential of chemicals, or as a stand-alone alternative to the in vivo (live animal) corrosivity test when used in specific testing circumstances for acids and bases. We are also recommending that since false positive or negative test results are possible, there should be ample opportunity for confirmatory testing." Dr. Scala is a former president of the Society of Toxicology.

This is the second expert panel to be convened by ICCVAM for the review of a new toxicological test method. The first review resulted in the validation of a test called the Murine Local Lymph Node Assay that uses one-third to one-half fewer animals to determine the potential of chemicals to cause allergic dermatitis.

Corrositex is sold by In Vitro International of Irvine, Calif. ■

International News...

Welfare of Animals in Transport

The *Veterinary Record* (June 5, 1999) reported that European rules intended to safeguard the welfare of animals during transport would be strengthened as from 1 July when an EC regulation governing the standards of vehicles used to transport animals over long journeys came into force throughout the EU. EC regulation 411/98 set out the standards required of vehicles used for joumeys of more than 8 hours and lays down specific requirements regarding vehicle access and ventilation, partitions and bedding, and the food and water carried on the journey. In Britain, the Welfare of Animals (Transport) Order 1997 (WATO) was to be amended to make failure to comply with EC requirements an offense under the Animal Health Act 1981. However, apart from optional provisions regarding forced ventilation systems which had still to be finalized, the EU requirements were already met in Britain through WATO and associated guidance.

Docked Dogs in Norway

Dog World (June 18, 1999) reported that docked dogs would not be permitted to be imported to Norway from January 1, 2000. Dispensations granted for the remainder of 1999 would require the docking to be fully documented by the vet who actually performed it. The change in regulations would implement Norway's 1974 Animal Welfare Act, which made tail docking illegal.

(From Tim Harris, AATA Eurofile)

On-line Databases
What Is Available? What Is Missing?

by
Tim Allen, M.S.,
United States Department of Agriculture, Agricultural Research Service,
National Agricultural Library, Animal Welfare Information Center, Beltsville, Maryland, USA

Editor's note: This paper is adapted from a talk given at the Second World Congress on Alternatives and Animal Use in the Life Sciences held in Utrecht, The Netherlands, in 1996.

It has been the Animal Welfare Information Center (AWIC) staff's experience that many researchers looking for alternatives to painful procedures or the use of animals search only Medline and ignore other databases that index biomedical, biological, and bioengineering literature, computer hardware and software, or audiovisuals. There are, however, many comprehensive and specialty databases that should be examined, each with strengths and weaknesses as they pertain to the use of animals or alternatives in research. And an effective multidatabase searching technique and terminology, such as that used by AWIC staff to find alternatives, is also important.

While these sources will provide the user with a wealth of information, they cannot provide information that is not made available by the scientific community. The publication of negative scientific results and/or specific conditions affecting animals used in experiments, use of alternatives terminology when abstracting journal articles or assigning keywords, and standardization of indexing terms for alternatives are several areas that would greatly benefit the search for alternatives.

Commercial/Government Databases (in alphabetical order)

Information in this section was obtained from DIALOG Blue Sheets, WWW, and experience using the database. DIALOG Blue Sheets, which contain descriptive information about the databases found on DIALOG, can be found at

DIALOG is an information service that provides access to more than 450 databases covering a range of disciplines. Subscription information can be obtained from Knight-Ridder Information, Inc., 2440 El Camino Real, Mountain View, California 94040, USA; tel: (415) 858-3785; http://www.dialog.com

AGRICOLA (AGRICulture OnLine Access)

AGRICOLA is produced by the U.S. Department of Agriculture's National Agricultural Library (NAL) and covers the period from 1970 to the present. One of the major strengths of this database is its inclusion of a variety of information sources. The materials covered in this database consist of articles, notes, letters, or chapters from peer-reviewed journals, popular magazines, newsletters, books, theses, patents, translations, audiovisuals, software, technical reports, and congressional documents related to agricultural and animal welfare issues. Subject coverage includes agriculture in its broadest sense, alternatives to animal testing, animal behavior, animal sciences, animal welfare, laboratory animal medicine, physiology, veterinary medicine, wildlife, and zoology. It is especially strong in veterinary anesthesiology for farm animals, dogs, and cats, and increasingly so for laboratory animals. The *CAB Thesaurus* is the basis for controlled vocabulary indexing. Both AGRICOLA and CAB Abstracts index using the phrase *animal testing alternatives*. A search performed in AGRICOLA in October 1996 using this phrase retrieved 693 records. One complaint is lack of information concerning drugs, chemicals, enzymes, etc., used in a study. It would be useful to have Chemical Abstract Service (CAS) registry numbers added in a descriptor field, or at the very least, list all pertinent compounds used in a study.

At the present time, AGRICOLA indexes more than 1,400 journals including many types of gray literature (pamphlets, conference reports, etc.) that are difficult to locate. AGRICOLA is available from DIALOG as File 10. AGRICOLA can also be searched on http://www.nal.usda.gov/ag98/ag98.html. Information about AGRICOLA can be found at http://www.nal.usda.gov/general_info/agricola/agricola.html

BIOSIS Previews

BIOSIS Previews is a comprehensive biological and biomedical database containing more than 12 million citations. As with AGRICOLA, this database also includes a variety of information types such as journals, meeting abstracts, reviews, books, notes, letters, institutional and government reports, and research communications. Subject coverage includes all the life sciences such as agriculture, behavior, biotechnology, cell biology, pharmacology, physiology, radiation biology, toxicology, veterinary science, etc. According to BIOSIS, there is no thesaurus or controlled vocabulary used (personal communication, 1996). Several years ago, BIOSIS considered either developing a separate database on alternatives or devising a new indexing system to make searching for alternatives more practical. It was finally decided that there was not enough interest in the topic within their user community to warrant a separate database and that the indexing system in place was adequate to address searching for alternatives. In spite of those decisions, BIOSIS remains a tremendous resource for those looking to implement alternatives in their studies. BIOSIS has also added another database — Methods Finder — to its list of services. It is available at http://www.methodsfinder.org/home.html

At the present time, BIOSIS indexes almost 10,000 journals and monographs each year. It is available as File 5 (1969-present) or File 55 (1985-present) on DIALOG. The BIOSIS web site can be found at http://www.biosis.org.

CAB Abstracts

CAB Abstracts is probably the world's most comprehensive database for agriculture, animal health, veterinary medicine, and increasingly, laboratory animal medicine, husbandry, and welfare. This database indexes more than 11,000 journals, as well as books, serial monographs, reports, newsletters, theses, symposium and conference proceedings, bibliographies, and translations. Most of the records contain abstracts. The *CAB Thesaurus* is the basis for controlled vocabulary indexing. It should be noted that AGRICOLA does not usually index materials that can be found in CAB Abstracts. Subject coverage includes agriculture in its broadest sense, animal health, animal production, animal sciences, animal testing alternatives, animal welfare, laboratory animal medicine and husbandry, veterinary medicine and science, and related topics. Unlike AGRICOLA, CAB provides very specific information with each record. CAS registry numbers make it very simple to locate records pertaining to specific chemical compounds, and organism descriptors make it easy to search for information by species, breed, variety, etc. Although *animal testing alternatives* is used as an indexing term, a quick search of the database done in October 1996 using this phrase retrieved only 30 records. The reason for the lack of records will be discussed later.

At the present time, CAB Abstracts contains more than 3 million records. It is available on DIALOG as File 50 (1972-present) and is also available as a CD-ROM. The CAB Abstracts Database web site can be found at http://www.cabi.org/infolib/cababdb/cababdb.htm

EMBASE

EMBASE is produced by Elsevier Science Publishers in the Netherlands and covers the period from 1974 to the present. It is an important database to use when looking for alternatives to animal research because it indexes articles and notes from journals, conferences, symposia, and meetings. Subject coverage includes all aspects of human medicine and in vivo and in vitro biomedical research on topics including but not limited to anesthesiology, cancer, cardiovascular disorders, drug abuse, neurology, ophthalmology, pharmacology, physiology, psychiatry, surgery, toxicology, etc. In general, there is about a 10-percent to 30-percent overlap with Medline on materials indexed, depending on the subject area. EMBASE also provides extensive documentation of drugs and/or chemicals used in experiments. The July 1995 issue of Profile: the Excerpta Medicine Newsletter (Profile 1995) had an article on searching EMBASE for alternatives to animal testing. The article advises using their EMTREE term "animal welfare" along with terms such as "animal experiment," "animal model," or "animal testing alternative." But using the term "animal welfare" retrieves only about 250 records from the entire database. Even so, the AWIC staff has found EMBASE to be a major source of information on alternatives and always includes this database in any literature search.

EMBASE currently indexes more than 3,500 journals from over 110 countries and adds almost 400,000 new records annually to the 7 million records already indexed. It is available from DIALOG as File 72 (1974-present) or File 73 (1985-present). The Elsevier Science web site search utility can be found at http://www.elsevier.com/homepage/search.htt.

The website offers free searching of the tables of contents of all journals indexed by Elsevier.

MEDLINE

MEDLINE is produced by the U. S. National Library of Medicine and covers the period from 1966 to the present. Medline is an exceptional database in that it provides comprehensive coverage of human medicine, animal-based and in vitro biomedical research, and veterinary medicine and science for both farm and laboratory animals. Unlike the databases already discussed, MEDLINE includes only information from peer-reviewed journals. Indexing uses a controlled vocabulary known as MeSH (MEdical Subject Headings). The database also provides extensive information on drugs and chemicals used in experiments. This information can be found using trade names, chemical names, or CAS registry numbers. MEDLINE indexes articles using the phrases "animal testing alternatives" and "animal welfare." Unfortunately, a search performed in October 1996 found that "animal testing alternatives" retrieves only 404 records, while "animal welfare" finds only 2,006. However, it is an easy database to search using free text terms.

MEDLINE currently contains about 9 million records. It is available from DIALOG as File 154 (1985-present) or File 155 (1966-present). MEDLINE can also be searched using Internet Grateful Med at http://igm.nlm.nih.gov.

PASCAL

PASCAL is produced by the French National Research Council's Institut de l'Information Scientifique et Technique and covers the period from 1973 to the present. This is a major multidisciplinary database that provides coverage of chemistry, biology, medicine, biomedical research, neurosciences, biotechnology, zoology (especially invertebrates), and the agricultural sciences. It does not cover animal husbandry or veterinary pathology. PASCAL also indexes materials from a variety of sources including journals, theses, conference proceedings, reports, books, and patents. Indexing is done with a controlled vocabulary of more than 80,000 terms. However, free text searching is very easy to perform.

At the present time, PASCAL indexes more than 8,500 journals. This accounts for 93 percent of the database of 11 million records; 7 percent comes from gray literature. According to the PASCAL web site, 65 percent of the literature indexed covers the medical and biological sciences. It is available from DIALOG as File 144 (1973-present). The English version WWW address is http://www.inist.fr/anglais/bbdang/pascal/pascal.htm

The homepage of the French National Research Council's Institut de l'Information Scientifique et Technique can be found at http://www.inist.fr.

TOXLINE

TOXLINE is produced by the U.S. National Library of Medicine and covers the period from pre-1950 to the present. The types of publications indexed are journals, books, reports, theses, letters, meetings, project summaries, and unpublished materials. Subject coverage includes adverse drug reactions, carcinogenesis, drug evaluation, mutagenesis, pollution, pesticides, herbicides, radiation, teratogenesis, and all other aspects of toxicology. TOXLINE uses the MESH terms discussed in MEDLINE as its controlled vocabulary but again it is an easy database to search free text. Useful terms include

"animal welfare" and "animal testing alternatives," although these terms alone are not sufficient to ensure a thorough search for alternative methods. Information on drugs or chemical compounds is easy to find using CAS registry numbers, chemical names, or tradenames.

At the present time, TOXLINE contains more than 2 million records. It is available from DIALOG as File 156. It can also be searched via Internet Grateful Med at the address given above.

Below is a comprehensive listing of databases, including some not mentioned in this discussion.

Available on Dialog:

- AGRICOLA - file 10
- MEDLINE - file 155
- EMBASE - file 73
- BIOSIS - file 5
- LIFESCIENCES - file 76
- ZOOLOGICAL RECORD - file 185
- ASFA - file 44
- PSYCHINFO - file 11
- SCISEARCH - file 434
- TOXLINE - file 156
- CAB - file 50
- AGRIS - file 203
- INT'L PHARM. ABSTRACTS - file 74
- NTIS - file 6
- INSPEC - file 2
- COMPENDEX PLUS - file 8
- MICROCOMPUTER INDEX - file 233
- A-V ONLINE - file 46
- PASCAL - file 144
- CANCERLIT - file 159
- RTECS - file 336

Multidatabase Searching and Useful Terminology

Several papers have discussed, in detail, strategies for retrieving information on alternatives from databases (Shevell and James 1995, Smith 1994, Snow 1990). Those interested in an in-depth look at developing search strategies are encouraged to read these articles. The first step in conducting a search is to have a clear understanding of the objectives and methods of the proposed study. Too often investigators ask for alternatives to very specific procedures without putting the procedure in the context of an experiment. To properly look for alternatives, you have to know why the procedure is being performed and what the expected outcome is.

Once all pertinent information is at hand, the literature search strategy can be developed. It is convenient to conduct a search using the 3Rs as a guide. The first part of the search will examine the literature closely related to the proposed study for refinements to the proposed methods, methods or models that reduce the number of animals used, and to see if the proposed work duplicates previously published experiments (this is a requirement of the U.S. Animal Welfare Act). The terminology used in this part of the search will come from the area of study. Depending on the type of research, it might also be important to look for appropriate anesthetics, analgesics, methods of restraint, etc. Also remember to include both American and European spelling of words—for example, anesthesia, anaesthesia, anasthesia. It is also useful to determine that any anesthetics that are going to be administered do not interfere with any of the physiological variables that are being measured (for example, when methoxyflurane is metabolized it produces fluoride ions, that may cause renal damage (Flecknell 1987)).

In the second part of the strategy, the remaining R—replacement—is considered. There may be some overlap with the first part of the search, in that alternative animal models may already be in hand. If not, then alternative mammalian and nonmammalian models should be considered. Below is a short list of useful terms that AWIC staff use. The ? is a truncation code used by DIALOG. For a more complete listing, see *Searching Agricola for Animal Welfare* (Clingerman et al. 1990) and *Animal Welfare Information Center Scope Notes* (Swanson 1991). Both are available from AWIC.

animal model(s)
animal testing alternative(s)
Alternative(s)-use with caution!
artificial
vitro(method, model, technique)
culture (cell, tissue, organ)
isolated (cell, tissue, organ)
model?
plastinat?
invertebrate?
fish?, cephalopod?
amphibian?, reptile?
simulat? (simulation(s), simulator(s))
computer(s)
software
interactive
digital image?
virtual (surgery, reality)
video? (disc, display)
mannequin? (manikin)
mathematical model(s)
cadaver?
anesthe?, anasthe?, anaesthe?
analges?, sedative, anxiolytic
euthan?
handl? (handling)
housing, facilit?, caging
train?, educat?, teach?
welfare, pain, stress, distress
assay?, technique?, method?, proced?
environ? enrich?, toy, toys, play?
behav? enrich?

Note: *Refinement alternatives are found using terms relevant to the area of study.*

What Is Missing?

As noted, the phrase *animal testing alternatives* is used as an indexing term by AGRICOLA, MEDLINE, and other databases but fails to retrieve much useful information. Why? If the author of a scientific paper has not made it excruciatingly clear that the paper discusses an alternative technique or model, the indexer usually does not have the leeway to add the alternatives tag as a descriptor, keyword, or MESH term. Similarly, in looking for animal models, many authors fail to mention the species or strain of animal in the abstract or keywords. Abstracts often don't mention anesthetics, analgesics, or sex of animals used. So this information don't make it

into the database. Many authors do not even mention this type of information in the body of the paper. Papers often don't mention the husbandry and environmental conditions under which the animals are kept nor spell out problems encountered during the course of an experiment. This is the type of information that other scientists can use to avoid the same mistakes and thus refine a procedure or find an alternative model. A very good accounting of how scientists can improve scientific writing and add to the body of literature on alternatives can be found in Morton (1992). To ensure that articles are properly indexed, authors should include relevant alternatives terminology in the title, abstract, and keywords.

Another aspect of scientific publishing is the publishing of negative results or experiments that fail to confirm a hypothesis. While it may not seem useful at the time, the chances are very good that someone else is going to encounter the same problem. Make it known! Similarly, laboratories conduct small pilot studies or experiments to determine things such as the effects on receptor function or density of using carbon dioxide as a pre-decapitation anesthetic. These studies may not warrant a peer-reviewed article but may be useful as a technical note or newsletter item. The point is to make that information available. The *Animal Welfare Information Center Newsletter* welcomes articles detailing this type of information.

Finally, one of the major problems in retrieving information on alternatives is the lack of standard indexing terminology. While proprietary indexing systems are important to the identity and profitability of commercial databases, it would enhance information retrieval if databases could develop controlled vocabulary for alternatives terminology.

In an era when there is instant access to literally millions of scientific documents, taking the time to properly write up research will ensure that it is more easily retrieved and more widely cited.

References

Profile: The Excerpta Medica Newsletter (1995). Humane alternatives to animal testing. 12(1): 5.

Clingerman, K., C. Dowling, and J. Swanson (1990). *Searching AGRICOLA for Animal Welfare*. Search Tip Series:STS-03, National Agricultural Library, AWIC: Beltsville, Maryland, 20 pp.

Flecknell, P.A. (1987). *Laboratory Animal Anesthesia.* Academic Press:London, New York, p.28-29.

Morton, D. (1992). A fair press for animals. *New Scientist* 134(1816): 28-30.

Personal communication with Allan Clark (October 1996), Director of Product Development, Biosis.

Shevell, J.L. and M.L. James (1995). Search for animal alternatives and the role of the Information Specialist. *Contemporary Topics* 34(3): 65-68.

Smith, C. (1994). AWIC tips for searching for alternatives to animal research and testing. *Lab Animal* 23(3): 46-48.

Snow, B. (July, 1990). Online searching for alternatives to animal testing. *Online* p.94-97.

Swanson, J. (1991). *Animal Welfare Information Center Scope Notes.* AWIC Series # 6. National Agricultural Library, AWIC: Beltsville, Maryland, 11 pp.

New Website on Assessment of Animal Welfare Is Now Available

http://www.vetinfo.demon.nl/aw/index.html

Dr. Hans Kuiper, Department of Laboratory Animal Science, Utrecht University, The Netherlands and Tim Allen, U.S. Department of Agriculture, Animal Welfare Information Center, Beltsville, Maryland, have compiled a database of literature on the recognition and assessment of animal welfare, pain and distress.

The references cited (more than 400) cover all species of animals used in research, testing, teaching, and agricultural production including fish, reptiles, and amphibians. Links are also available to relevant articles, policies, guidelines, and scientific and veterinary journals. The site will be updated on a regular basis.

Veterinary Group Takes Position Against Ear Cropping

(From Tufts University School of Veterinary Medicine *The Animal Policy Report* 1999, 13(2):5)

The American Animal Hospital Association (AAHA), one of the premier established national veterinary organizations, has joined a growing number of animal protection groups in questioning the need for surgeries done primarily, if not exclusively, for cosmetic purposes in dogs. These primarily involve the cropping of ears and/or docking of tails on breeds such as the Great Dane, Doberman, Schnauzer, etc. Although many individual veterinarians no longer perform ear cropping, and to a lesser extent tail docking, most mainstream veterinary organizations have been reluctant to follow suit. The resolution adopted by the AAHA marks a turning point in this effort, and reads as follows:

"Ear cropping and tail docking in dogs for cosmetic reasons are not medically indicated nor of benefit to the patient. These procedures cause pain and distress, and, as with all surgical procedures, are accompanied by inherent risks of anesthesia, blood loss, and infection. Therefore, veterinarians should counsel dog owners about these matters before agreeing to perform these surgeries."

For the past six years, the Association of Veterinarians for Animal Rights (AVAR) has sponsored somewhat stronger resolutions at the American Veterinary Medical Association annual meeting that oppose ear cropping and tail docking for non-therapeutic reasons. However, so far these resolutions have not been adopted.

[Editor's note: The American Veterinary Medical Association House of Delegates passed an identical resolution at it's July 1999 meeting in New Orleans, Louisiana.]

Legislation *cont'd from p.1*

Resolved, That a committee of such Members of the House as the Speaker may designate, together with such Members of the Senate as may be joined, be appointed to attend the funeral.

Resolved, That the Sergeant at Arms of the House be authorized and directed to take such steps as may be necessary for carrying out the provisions of these resolutions and that the necessary expenses in connection therewith be paid out of the contingent fund of the House.

Resolved, That the Clerk communicate these resolutions to the Senate and transmit a copy thereof to the family of the deceased.

Resolved, That when the House adjourns today, it adjourn as a further mark of respect to the memory of the deceased.

- **H.R. 1887 To amend title 18, United States Code, to punish the depiction of animal cruelty.**

Introduced May 20, 1999, by Elton Gallegly (R-California) and referred to the Committee on the Judiciary.

Chapter 3 of title 18, United States Code, is amended by adding at the end the following:

Sec. 48. Depiction of animal cruelty

(a) CREATION, SALE, OR POSSESSION- Whoever knowingly creates, sells, or possesses a depiction of animal cruelty with the intention of placing that depiction in interstate or foreign commerce for commercial gain, shall be fined under this title or imprisoned not more than 5 years, or both.

(b) DEFINITIONS- In this section—

(1) the term 'depiction of animal cruelty' means any visual or auditory depiction, including any photograph, motion-picture film, video recording, electronic image, or sound recording of conduct in which a living animal is intentionally maimed, mutilated, tortured, wounded, or killed, if such conduct is illegal under Federal law or the law of the State in which the creation, sale, or possession takes place, regardless of whether the maiming, mutilation, torture, wounding, or killing took place in the State...

- **H. R. 1934 To amend the Marine Mammal Protection Act of 1972 to establish the John H. Prescott Marine Mammal Rescue Assistance Grant Program.**

Introduced May 25, 1999, by Jim Saxton (R-New Jersey) and referred to the Committee on Resources; reported with an amendment, July 20, 1999, and committed to the Committee of the Whole House on the State of the Union, and ordered to be printed [Report No. 106-242].

SEC. 408. JOHN H. PRESCOTT MARINE MAMMAL RESCUE ASSISTANCE GRANT PROGRAM.

(a) IN GENERAL- (1) Subject to the availability of appropriations, the Secretary shall conduct a grant program to be known as the John H. Prescott Marine Mammal Rescue Assistance Grant Program, to provide grants to eligible stranding network participants for the recovery or treatment of marine mammals, the collection of data from living or dead marine mammals for scientific research regarding marine mammal health, and facility operation costs that are directly related to those purposes; (2)(A) The Secretary shall ensure that, to the greatest extent practicable, funds provided as grants under this subsection are distributed equitably among the designated stranding regions.

Other sections of the bill define determination of stranding region and stranding networks may apply for this grant and describe membership in the program advisory board and matching funds requirements and administrative requirements.

- **H.R.2166 To conserve global bear populations by prohibiting the importation, exportation, and interstate trade of bear viscera and items, products, or substances containing, or labeled or advertised as containing, bear viscera, and for other purposes.**

Introduced June 10, 1999, by John Edward Porter (R-Illinois) and referred to the Committee on Resources and, in addition, to the Committee on International Relations, and the Committee on Ways and Means. This Act may be cited as the "Bear Protection Act of 1999."

SEC. 2. FINDINGS. Congress finds that—

(1) all 8 extant species of bear—Asian black bear, brown bear, polar bear, American black bear, spectacled bear, giant panda, sun bear, and sloth bear—are listed on Appendix I or 11 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (27 UST 1087; TIAS 8249) (referred to in this section as 'CITES');

(2) Article XIV of CITES provides that Parties to CITES may adopt stricter domestic measures regarding the conditions for trade, taking, possession, or transport of species on Appendix I or 11, and the Parties to CITES adopted a resolution (Conf. 10.8) urging Parties to take immediate action to demonstrably reduce the illegal trade in bear parts and derivatives;

(3) the Asian bear populations have declined significantly in recent years, as a result of habitat loss and poaching due to a strong demand for bear viscera used in traditional medicines and cosmetics;

(4) Federal and State undercover operations have revealed that American bears have been poached for their viscera;

(5) while most American black bear populations are generally stable or increasing, commercial trade could stimulate poaching and threaten certain populations if the demand for bear viscera increases; and

(6) prohibitions against the importation into the United States and exportation from the United States, as well as prohibitions against the interstate trade, of bear viscera and products containing, or labeled or advertised as containing, bear viscera will assist in ensuring that the United States does not contribute to the decline of any bear population as a result of the commercial trade in bear viscera.

SEC. 3. PURPOSES.

The purpose of this Act is to ensure the long-term viability of the world's 8 bear species by—

(1) prohibiting international trade in bear viscera and products containing, or labeled or advertised as containing, bear viscera;

(2) encouraging bilateral and multilateral efforts to eliminate such trade; and

(3) ensuring that adequate Federal legislation exists with respect to domestic trade in bear viscera and products containing, or labeled or advertised as containing, bear viscera.

SEC. 4. DEFINITIONS. In this Act:

(1) BEAR VISCERA- The term 'bear viscera' means the body fluids or internal organs, including the gallbladder and its contents but not including blood or brains, of a species of bear.

(2) IMPORT- The term 'import' means to land on, bring into, or introduce into any place subject to the jurisdiction of the United States, whether or not the landing, bringing, or introduction constitutes an importation within the meaning of the customs laws of the United States.

SEC. 5. PROHIBITED ACTS.

(a) IN GENERAL- Except as provided in subsection (b), a person shall not—

(1) import into, or export from, the United States bear viscera or any product, item, or substance containing, or labeled or advertised as containing, bear viscera; or

(2) sell or barter, offer to sell or barter, purchase, possess, transport, deliver, or receive, in interstate or foreign commerce, bear viscera or any product, item, or substance containing, or labeled or advertised as containing, bear viscera.

(b) EXCEPTION FOR WILDLIFE LAW ENFORCEMENT PURPOSES- A person described in subparagraph (B) or (C) of section 4(3) may import into, or export from, the United States, or transport between States, bear viscera or any product, item, or substance containing, or labeled or advertised as containing, bear viscera if the importation, exportation, or transportation—

(1) is solely for wildlife law enforcement purposes; and

(2) is authorized by a valid permit issued under Appendix I or 11 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (27 UST 1087; TIAS 8249), in any case in which such a permit is required under the Convention.

SEC. 6. PENALTIES AND ENFORCEMENT.

(a) CRIMINAL PENALTIES- A person that knowingly violates section 5 shall be fined under title 18, United States Code, imprisoned not more than 1 year, or both.

(b) CIVIL PENALTIES-

(1) AMOUNT- A person that knowingly violates section 5 may be assessed a civil penalty by the Secretary of not more than $25,000 for each violation.

- **H.R.2776 To improve the safety of animals transported on aircraft, and for other purposes.**

Introduced August 5, 1999, by Robert Menendez (D-New Jersey) and referred to the Committee on Transportation and Infrastructure, and in addition to the Committee on Agriculture. This Act may be cited as the "Safe Air Travel for Animals Act."

SEC. 2. FINDINGS. Congress finds that—

(1) animals are live, sentient creatures, with the ability to feel pain and suffer;

(2) it is inappropriate for animals transported by air to be treated as baggage;

(3) according to the Air Transport Association, over 500,000 animals are transported by air each year and as many as 5,000 of those animals are lost, injured, or killed;

(4) most injuries to animals traveling by airplane are due to mishandling by baggage personnel, severe temperature fluctuations, insufficient oxygen in cargo holds, or damage to kennels;

(5) there are no Federal requirements that airlines report incidents of animal loss, injury, or death;

(6) members of the public have no information to use in choosing an airline based on its record of safety with regard to transporting animals;

(7) the last congressional action on animals transported by air was conducted over 22 years ago; and

(8) the conditions of cargo holds of airplanes must be improved to protect the health, and ensure the safety, of transported animals.

TITLE 1—ANIMAL WELFARE

SEC. 101. DEFINITION OF TRANSPORT.

Section 2 of the Animal Welfare Act (7 U.S.C. 2132) is amended by adding at the end the following:

(p) TRANSPORT- The term 'transport', when used with respect to the air transport of an animal by a carrier, means the transport of the animal during the period the animal is in the custody of the carrier, from check-in of the animal prior to departure until the animal is returned to the owner or guardian of the animal at the final destination of the animal..

SEC. 102. INFORMATION ON INCIDENCE OF ANIMALS IN AIR TRANSPORT.

Section 6 of the Animal Welfare Act (7 U.S.C. 2136) is amended—

(b) INFORMATION ON INCIDENCE OF ANIMALS IN AIR TRANSPORT- Not later than 2 years after the date of enactment of this subsection, the Secretary [of Agriculture] shall require each airline carrier to—

(1) submit to the Secretary real-time information (as the information becomes available, but at least 24 hours in advance of a departing flight) on each flight that will be carrying a live animal, including— (A) the flight number; (B) the arrival and departure points of the flight; (C) the date and times of the flight; and (D) a description of the number and types of animals aboard the flight; and

(2) ensure that the flight crew of an aircraft is notified of the number and types of animals, if any, on each flight of the crew.

SEC. 103. REPORTS BY CARRIERS ON INCIDENTS INVOLVING ANIMALS DURING AIR TRANSPORT.

Section 19 of the Animal Welfare Act (7 U.S.C. 2149) is amended by adding at the end the following:

(e) REPORTS BY CARRIERS ON INCIDENTS INVOLVING ANIMALS DURING AIR TRANSPORT-

(1) IN GENERAL- An airline carrier that causes, or is otherwise involved in or associated with, an incident involving the loss, injury, death or mishandling of an animal during air transport shall submit a report to the Secretary of Agriculture and the Secretary of Transportation that provides a complete description of the incident.

(2) ADMINISTRATION- Not later than 90 days after the date of enactment of this subsection, the Secretary of Agriculture, in consultation with the Secretary of Transportation, shall issue regulations that specify—

(A) the type of information that shall be included in a report required under paragraph (1), including—(i) the date and time of an incident; (ii) the location and environmental conditions of the incident site; (iii) the probable cause of the incident; and (iv) the remedial action of the carrier; and

(B) a mechanism for notifying the public concerning the incident.

(3) CONSUMER INFORMATION- The Secretary of Transportation shall include information received under paragraph (1) in the Air Travel Consumer Reports and other consumer publications of the Department of Transportation in a separate category of information.

(4) CONSUMER COMPLAINTS- Not later than 15 days after receiving a consumer complaint concerning the loss, injury, death or mishandling of an animal during air transport, the Secretary of Transportation shall provide a description of the complaint to the Secretary of Agriculture.

TITLE II—TRANSPORTATION

SEC. 201. POLICIES AND PROCEDURES FOR TRANSPORTING ANIMALS.

(a) IN GENERAL- Subchapter I of chapter 417 of title 49, United States Code, is amended by adding at the end the following:

Sec. 41717. Policies and procedures for transporting animals

An air carrier shall establish and include in each contract of carriage under part 253 of title 14, Code of Federal

Regulations (or any successor regulation) policies and procedures of the carrier for transporting animals safely, including—

(1) training requirements for airline personnel in the proper treatment of animals being transported; (2) information on the risks associated with air travel for animals; (3) a description of the conditions under which animals are transported; (4) the safety record of the carrier with respect to transporting animals; and (5) plans for handling animals prior to and after flight, and when there are flight delays or other circumstances that may affect the health or safety of an animal during transport.

SEC. 203. CARGO HOLD IMPROVEMENTS TO PROTECT ANIMAL HEALTH AND SAFETY.

(a) IN GENERAL- To protect the health and safety of animals in transport, the Secretary of Transportation shall—(I) in conjunction with requiring certain transport category airplanes used in passenger service to replace class D cargo or baggage compartments with class C cargo or baggage compartments under parts 25, 121, and 135 of title 14, Code of Federal Regulations, to install, to the maximum extent practicable, systems that permit positive airflow and heating and cooling for animals that are present in cargo or baggage compartments; and (2) effective beginning January 1, 2001, prohibit the transport of an animal by any carrier in a cargo or baggage compartment that fails to include a system described in paragraph (1).

In addition, the act also provides for civil penalties and remuneration to owners of animals injured or killed.

- **S. 1345 To amend title 18, United States Code, to prohibit certain interstate conduct relating to exotic animals.**

Introduced July 12, 1999, by Frank Lautenberg (D-New Jersey) which was read twice and referred to the Committee on the Judiciary. This Act may be cited as the "Captive Exotic Animal Protection Act of 1999."

"SEC. 2. TRANSPORT OR POSSESSION OF EXOTIC ANIMALS FOR PURPOSES OF KILLING OR INJURING THEM.

(a) IN GENERAL- Chapter 3 of title 18, United States Code, is amended by adding at the end the following:

See. 48. Exotic animals

(a) PROHIBITION- Whoever, in or affecting interstate or foreign commerce, knowingly transfers, transports, or possesses a confined exotic animal, for the purposes of allowing the killing or injuring of that animal for entertainment or for the collection of a trophy, shall be fined under this title, imprisoned not more than 1 year, or both.

(b) DEFINITIONS- In this section—

(1) the term 'confined exotic animal' means a mammal of a species not historically indigenous to the United States, that has been held in captivity for the shorter of—(A) the greater part of the life of the animal; or '(B) a period of 1 year; whether or not the defendant knew the length of the captivity; and (2) the term 'captivity' does not include any period during which an animal—'(A) lives as it would in the wild, surviving primarily by foraging for naturally occurring food, roaming at will over an open area of not less than 1,000 acres; and (B) has the opportunity to avoid hunters."

- **S. 1495 To establish, wherever feasible, guidelines, recommendations, and regulations that promote the regulatory acceptance of new and revised toxicological tests that protect human and animal health and the environment while reducing, refining, or replacing animal tests and ensuring human safety and product effectiveness.**

Introduced August 4, 1999, by Mike DeWine (R-Ohio) and referred to the Committee on Health, Education, Labor, and Pensions. This Act may be cited as the "ICCVAM Authorization Act of 1999."

SEC. 2. INTERAGENCY COORDINATING COMMITTEE ON THE VALIDATION OF ALTERNATIVE METHODS.

(a) IN GENERAL- The Interagency Coordinating Committee on the Validation of Alternative Methods (referred to in this Act as 'ICCVAM') shall be sustained as a permanent standing committee and continued to be administered by the National Institute of Environmental Health Sciences. The purposes of ICCVAM shall be to—

(1) increase the efficiency and effectiveness of Federal agency test method review;

(2) eliminate duplicative efforts and share experiences across Federal regulatory agencies;

(3) optimize utilization of scientific expertise outside the Federal Government;

(4) ensure that new test methods meet the needs of Federal agencies; and

(5) reduce, refine, and replace the use of animals in testing.

(b) COMPOSITION- ICCVAM shall be comprised of a representative from each of the following agencies and organizations: (1) Agency for Toxic Substances and Disease Registry; (2) Consumer Product Safety Commission; (3) Department of Agriculture; (4) Department of Defense; (5) Department of Energy; (6) Department of the Interior; (7) Department of Transportation; (8) Environmental Protection Agency; (9) Food and Drug Administration; (10) National Institute for Occupational Safety and Health; (11) National Institutes of Health; (12) National Cancer Institute; (13) National Institute of Environmental Health Sciences; (14)

National Library of Medicine; (15) Occupational Safety and Health Administration; (16) Any other agency that develops, employs, or regulates the use of animals in toxicity testing.

(c) SCIENTIFIC ADVISORY COMMITTEE-

(1) ESTABLISHMENT- In addition, the National Institute of Environmental Health Sciences shall establish a Scientific Advisory Committee to assist ICCVAM and the National Institute of Environmental Health Sciences. The Committee shall be composed of at least one knowledgeable representative having a history of expertise, development, or evaluation in alternatives to animal toxicological tests, from each of the following interests: (A) The personal care, pharmaceutical, industrial chemicals, agriculture, and any other regulated industry. (B) A national animal protection organization established under section 501(c)(3) of the Internal Revenue Code of 1986.

(2) MEMBERSHIP- The National Institute of Environmental Health Sciences shall also invite to be members of the Scientific Advisory Committee representatives from other stakeholder organizations such as: (A) An academic institution; (B) A State government agency; (C) An international regulatory body; (D) A corporation developing or marketing alternative test methodologies including contract laboratories.

(d) DUTIES- ICCVAM shall carry out the following duties consistent with the protection of public health and the environment and for the purpose of reducing, refining, and replacing the use of animals in acute and chronic toxicological tests:

(1) Review and evaluate existing and new alternative methods, including batteries of tests and test screens, which may be acceptable for specific regulatory uses, including the coordination of technical reviews of proposed new or revised test methods of interagency interest.

(2) Facilitate interagency and international harmonization of acute chronic toxicological test protocols that encourage the reduction, refinement, or replacement of animal tests.

(3) Facilitate, promote, and provide guidance on development of validation criteria and processes for new methods and help promote the acceptance of such methods and awareness of accepted methods by Federal agencies and other stakeholders.

(4) File formal recommendations with each appropriate Federal agency identifying specific agency guidelines, recommendations, or regulations for each new test, battery of tests, test screen, or end point reviewed by ICCVAM that may be appropriate for the reduction, refinement, or replacement of an animal test required or recommended by that Federal agency for compliance with that agency's specific statutes, regulations, or guidelines. Tests may be recommended for a certain class of chemicals within that regulatory framework.

(5) Consider for review and evaluation, petitions received from the public which identify a specific regulation, recommendation, or guideline, and which recommend alternatives and provide scientific evidence of the acceptability of the alternatives for the purpose of carrying out the regulatory mandate in question.

(6) Make final recommendations to agencies and responses from agencies available to the public.

(7) Make an annual report to be made available to the public on its progress to promote the regulatory acceptance of new and revised toxicological tests.

SEC. 3. APPLICATION.

This Act shall not apply to regulations, guidelines, or recommendations related to medical research. The term 'medical research' means research, including research performed using biotechnology, related to the causes, diagnosis, treatment, or control of physical or mental impairments of humans or animals. The term does not include the testing of a product to determine its toxicity for the purpose of complying with protocols, recommendations, or guidelines for testing required, recommended, or accepted by a Federal regulatory agency for a product introduced in commerce.

SEC. 4. FEDERAL AGENCY ACTION.

(a) IDENTIFICATION OF TESTS- Within 180 days after the date of enactment of this Act, each Federal agency authorized to carry out a regulatory program which requires or recommends acute or chronic toxicological testing shall identify any regulation or industry-wide guideline which specifically, or in practice requires, recommends, or encourages the use of an animal acute or chronic toxicological test and shall forward to ICCVAM a list of these regulations, guidelines, and recommendations along with the test or tests recommended or required.

(b) ALTERNATIVES- Each Federal agency shall promote and encourage the development and use of alternatives to animal tests, including batteries of tests and test screens, where appropriate, for the purpose of complying with Federal regulations, guidelines, or recommendations, in each instance, and for each chemical class, for which such tests are found to be effective for generating data at least equivalent for hazard identification or dose-response assessment purposes to the method established under the current regulatory scheme.

(c) TEST VALIDATION- Each Federal agency shall ensure that any new acute or chronic toxicity test, including animal tests and alternatives, is determined to be valid for its proposed use prior to requiring, recommending, or encouraging its application.

(d) REVIEWS- Each Federal agency shall review any formal recommendations from ICCVAM to promulgate new regulations or draft new guidelines or recommendations to promote the ICCVAM recommendations and notify ICCVAM in writing of its findings within 180 days of receipt of the recommendations.

(e) RECOMMENDATION ADOPTION- Each Federal agency shall adopt the ICCVAM recommendations unless each individual Federal agency determines that—

(1) the alternative is not adequate in terms of biological relevance for the regulatory goal authorized by that agency;

(2) the alternative does not generate data at least equivalent for the appropriate hazard identification or dose-response assessment purpose as the method recommended by that agency;

(3) that agency does not employ, recommend, or require testing for that class of chemical or for the recommended end point; or

(4) the new test method is unacceptable for satisfactorily fulfilling the test needs for that particular agency and its respective congressional mandate.

- **S. 1522 To amend the Animal Welfare Act to ensure that all dogs and cats used by research facilities are obtained legally.**

Introduced August 5, 1999, by Daniel Akaka (D-Hawaii) and referred to the Committee on Agriculture, Nutrition, and Forestry. This Act may be cited as the "Pet Safety and Protection Act of 1999."

SEC. 2. PROTECTION OF PETS.

(a) RESEARCH FACILITIES- Section 7 of the Animal Welfare Act (7 U.S.C. 2137) is amended to read as follows:

SEC. 7. SOURCES OF DOGS AND CATS FOR RESEARCH FACILITIES.

(a) DEFINITION OF PERSON- In this section, the term 'person' means any individual, partnership, firm, joint stock company, corporation, association, trust, estate, pound, shelter, or other legal entity.

(b) USE OF DOGS AND CATS- No research facility or Federal research facility may use a dog or cat for research or educational purposes if the dog or cat was obtained from a person other than a person described in subsection (d).

(c) SELLING, DONATING, OR OFFERING DOGS AND CATS- No person, other than a person described in subsection (d), may sell, donate, or offer a dog or cat to any research facility or Federal research facility.

(d) PERMISSIBLE SOURCES- A person from whom a research facility or a Federal research facility may obtain a dog or cat for research or educational purposes under subsection (b), and a person who may sell, donate, or offer a dog or cat to a research facility or a Federal research facility under subsection (c), shall be—(1) a dealer licensed under section 3 that has bred and raised the dog or cat; (2) a publicly owned and operated pound or shelter that—(A) is registered with the Department of Agriculture; (B) is in compliance with section 28(a)(1) and with the requirements for dealers in subsections (b) and (c) of section 28; and (C) obtained the dog or cat from its legal owner, other than a pound or shelter; (3) a person that is donating the dog or cat and that—(A) bred and raised the dog or cat; or (B) owned the dog or cat for not less than I year immediately preceding the donation; (4) a research facility licensed by the Department of Agriculture; and (5) a Federal research facility licensed by the Department of Agriculture.

(e) PENALTIES-

(1) IN GENERAL- A person that violates this section shall pay $1000 for each violation.

(2) ADDITIONAL PENALTY- A penalty under this subsection shall be in addition to any other applicable penalty and shall be imposed whether or not the Secretary imposes any other penalty.

(f) NO REQUIRED SALE OR DONATION- Nothing in this section requires a pound or shelter to sell, donate, or offer a dog or cat to a research facility or Federal research facility.

Announcements...

PUBLICATIONS, NEWSLETTERS, BOOKS, AND MULTIMEDIA

Anaesthetic & Sedative Techniques for Aquatic Animals

Lindsay G. Ross and Barbara Ross, 2nd edition, 174p., ISBN 0-632-05252-X, US $34.95, contact Iowa State University Press, 2121 S. State Ave., Ames, IA 50014-8300, tel: 1-800-862-6657, fax: (515) 292-3348, WWW: http://www.isupress.edu

Anaesthetic & Sedative Techniques for Aquatic Animals draws together the available information on sedation and anesthesia of fishes, both temperate and freshwater species, and provides an illustrated, practical guide for workers in aquaculture, fisheries research, and aquarium management. Topics include a general introduction concerning handling and pain management, effects of stress on physiology, the nature of anesthesia and sedation, features of an anesthetic agent, and how animals will respond. Based on first-hand experience, the text covers fish, amphibians, reptiles, and selected aquatic invertebrates, and includes a glossary of drugs, an explanation of major technical terms, and an index for ease of reference. A new chapter on transportation has been included as calming and sedative techniques have a useful role in this commercially important operation.

Assessing Dog Temperament: A Guide to Setting Up and Running Temperament Tests

Video and booklet published by Universities Federation for Animal Welfare. £15.00 per copy. Contact UFAW, The Old School, Brewhouse Hill, Wheathampstead, Herts AL4 8AN, UK, tel: 01582 831818, fax: 01582 831414, WWW: http://www.users.dircon.co.uk/~ufaw3/

Properly carried out temperament tests can improve the selection of dogs for working purposes or rehoming from shelters. Fitting the right dog to the right person or task improves the dog's welfare and saves time and money. But assessment tests need to be properly designed, validated, and carried out. The video will help those thinking of setting up an assessment program and is also a training tool for staff who will take part in assessment. It provides an introduction to the observation of behavior during a test and shows practical examples of tests and of dogs' responses to them.

Captive Care and Medical Reference for the Rehabilitation of Insectivorous Bats

Amanda Lollar and Barbara French; a Bat World Publication. Hardbound, 329pp., 186 photos, 60 diagrams. Price - $45.00 (plus $5.00 shipping and handling USA; outside USA - $5.00 bookrate, $15.00 airmail.) Credit cards and checks are accepted. Credit card orders can be e-mailed to batworld@wf.net, or faxed to (940) 325-3404. Checks should be made out to Bat World and sent to 217 N. Oak Avenue, Mineral Wells, TX 76067.

The book contains the following information: introduction (natural history of bats, wildlife rehabilitation permits, rabies, histoplasmosis, and special health precautions). Identification (species, age, roosting behavior of crevice dwelling and foliage roosting bats). Protocol for interacting with the public, requirements for a properly equipped bat rehabilitation facility (facility, supplies, pharmaceuticals), quarantine considerations, caging (transport carriers, permanent caging for adult crevice dwelling and foliage roosting bats, flight cages (indoor and outdoor), infant caging (crevice dwelling and foliage roosting), feeding adult bats (mediums, hand feeding, blended mealworm mixtures, teaching adult bats to self-feed, feeding crickets, water routines), feeding infants and juveniles (feeding orphan pups, infant bat formulas, introductory level formula, intermediate level formula, complications including bloat and metabolic bone disease), bathing and grooming procedures, initial rescue, diagnosis and treatment, examination, deferential diagnosis chart, dehydration and fluid replacement (oral hydration, hydration by subcutaneous injection), shock, wing injuries (membrane tears, closed and open fractures, stabilizing compound fractures with skin adhesive, intramedullary pinning of humeral and radial fractures, fracture rehabilitation prior to release, injuries to the shoulder, elbow, and wrist joints, amputations), back and leg injuries, foot and toe injuries, joint swelling, blunt force trauma, respiratory disorders (aspiration, pneumonia, punctured lung), heat exhaustion/heat stroke, electrical shock and burns, insect stings, adhesive contaminants, skin conditions, parasites, digestive disorders (gastritis, diarrhea, loss of appetite), anemia, infections of the gums and teeth, urinary tract infections, eye infections, injuries to the ear, bite wounds, pesticide poisoning, rabies (human exposure/bat bites, clinical signs of rabies in insectivorous bats), injection technique, oxygen therapy, anesthesia, antibiotics and other medications (antimicrobial therapy, medications; uses and dosages), caring for pregnant and lactating females (general information, Caesarean section and ovariohysterectomy), hibernation, marking of bats (acceptable marking methods used by rehabilitators, other marking methods), release of rehabilitated bats, care of nonreleasable captive bats (quality of life, roostmates, reproduction; orchiectomy), geriatric bats, daily examinations, euthanasia and guidelines for educational programs using live bats.

The appendix includes the following: State Information on Wildlife Rehabilitation Permits, Bats by State, Weight Chart and Forearm Measurements, Diets, Dental Chart, Number of Young, Hibernation and Roosting Patterns, Roosting Associations Between Species, Pronunciation of Scientific Bat Names, List of Veterinarian Contacts, Product List and Metric Conversions.

The Care and Feeding of an IACUC: The Organization and Management of an Animal Care and Use Committee

Edited by M. Lawrence Podolsky and Victor S. Lukas, 200pp., ISBN/ISSN 0849325803, $59.95, CRC Press LLC, 2000 NW Corporate Blvd., Boca Raton, FL 33431, WWW: http://www.crcpress.com

This book summarizes information critically necessary for the effective and efficient management and operation of an Institutional Animal Care and Use Committee (IACUC) and will be useful to IACUC members, administrative officials, veterinarians, and students using laboratory animals. The chapters cover communication, formation, and composition of the IACUC, records, issues in academia, forms and notices, a chairperson's perspective, the IACUC role in education and training, IACUC resources, assessing and managing pain and distress in laboratory animals, the principal investigator perspective, the literature search for alternatives, and ethics and quandaries. Ten appendices are also included covering contact information for organizations, databases, directories, and training materials.

Careful How You Hold Me

Retail prices are $AUS 150.00 (Australia and NZ) including packaging and postage. Overseas orders are $US 150.00, including packaging and postage. Special price for class sets over 10 CDs. Contact Ms. R. O'Shea, Multimedia Education Unit (MEU), University of Melbourne Parkville, Victoria, Australia 3052, tel: (613) 9344 6313, fax: (613) 9344 4341, e- mail: r.oshea@meu.unimelb.edu.au, WWW: http://www.meu.unimelb.edu.au/careful

New multimedia CD-ROM training program has been developed for investigators, honors and postgraduate students, animal technicians, teachers, and others new to the field of laboratory animal science and animal welfare. A resource for collective use or self-paced learning, it would also be of value to veterinarians and members of Animal Ethics Committees. Emphasis is on animal welfare, recommended standards of practice, and core information required to operate efficiently as an animal-based scientist.

There are five sections: Regulations; Husbandry (mouse, rat, guinea pig and rabbit); Anaesthesia; Aseptic Technique and Surgical Practice; and Euthanasia, Autopsy, and Disposal. The CD includes over 100 high-quality still photographs, 40 minutes of Quicktime movies, problem-solving examples, and testing (including an off-computer skills test in the section on husbandry), hot links to background information and much, much more. Material has been drawn from a wide range of sources including experience of practitioners working in the field over many years.

Child Abuse, Domestic Violence, and Animal Abuse: Linking the Circles of Compassion for Prevention and Intervention

Edited by Frank Ascione, 498pp., ISBN 1-55753-143-9, $24.95 + $5.00 shipping. To order, contact Latham Foundation, 1826 Clement Ave., Alameda, CA 94501, e-mail: lathm@aol.com, WWW: http://www.latham.org

Evidence is mounting that animal abuse is frequently embedded in families scarred by domestic violence and child maltreatment and often predicts the potential for other violent acts. The book is a compilation of 45 original essays by 51 noted authorities who argue compellingly that violence prevention programs are enhanced by including animal protection personnel and by recognizing animal maltreatment as a human welfare issue. The perspectives of law enforcement, legislative, child protection, domestic violence, veterinary, and humane officials are included.

Handbook of Animal Models of Infection

Edited by Oto Zak and Merle Sande, ISBN 0127753907, US $199.95, contact Academic Press, 525 B Street, Suite 1900, San Diego, CA 92101-4495, tel: 619-231-6616, e-mail: ap@acad.com, WWW: http://www.academicpress.com

This handbook is divided into five sections: a section on general methodologies followed by sections describing experimental bacterial, mycotic, parasitic, and viral infections. In addition, many new models that have been developed within the last decade or omitted for various reasons in the books of the first edition are included here. The sections discuss ethical and safety aspects; animal care and use committees; principles of animal care; and current techniques appropriate for the use of animal models of infection and details a wide range of animals including rodents, rabbits, cats, and primates.

An Introduction to Veterinary Medical Ethics: Theory and Cases

Bernard E. Rollin, 430pp., Iowa State University Press, 2121 S. State Ave, Ames, IA 50014-8300, tel: 1-800-862-6657, WWW: http://www.isupress.edu

Throughout their careers, practitioners and staff in all areas of veterinary medicine research and application will encounter situations involving colleagues, clients, and animals that demand ethical decision and action. Issues of animal mistreatment, pain, euthanasia, and abortion; illegal drug prescription, sale, or use; sexual harassment in the workplace; requests for improper or unnecessary procedures or medications; questionably performed procedures; and use of alternative medical techniques or equipment are a sampling of the ethical impediments encountered in modern practices and laboratories.

An Introduction to Veterinary Medical Ethics: Theory and Cases helps students and practitioners resolve ethical questions by identifying situations objectively, then acting with personal resolve. This book by renowned philosopher and veterinary ethicist Bernard E. Rollin explains the theory and methodology of making sound decisions about ethical matters commonly encountered by veterinarians and researchers. Rollins presents 82 case studies of real situations (originally shared in the ethics colunm of *The Canadian Veterinary Journal)* that exemplify a variety of veterinary situations for which ethical actions were required. Each study is accompanied by questions and commentary that encourage consideration of divergent perspectives and resolution by personal decision.

Surgery, Anesthesia, and Experimental Techniques in Swine

Edited by M. Michael Swindle, 320pp., Iowa State University Press, 2121 S. State Ave, Ames, IA 0014-8300, tel: 1-800-862-6657, WWW: http://www.isupress.edu

Nine international experts contribute to this practical technical guide for use of swine in biomedical research. Organized by organ system, the book is intended primarily for human and veterinary researchers using swine as experimental animals. It offers select procedures, such as anesthetic protocols, useful to veterinarians providing clinical care for pet pigs or in agricultural practice. The book contains sections on surgery as well as sections on other topics (for example, anatomy, handling, anesthesia) and a description of the uses of swine that reflect the developing interest in using swine to replace other species, such as dogs and primates. The book includes illustrations, 37 tables, including drawings of gross anatomy, and images from angiography, endoscopy, and magnetic resonance imaging (MRI).

Rescue Critters! CPR Training Mannequins

The "Jerry K9" dog mannequin has mouth-to-snout capabilities, working lungs, splintable legs, and a working pulse and realistic features. The "Fluffy" cat mannikin has mouth-to-snout capabilities, working lungs, splintable legs, and a working pulse as well. Also available are intubation mannequins that have realistic representations of the esophagus, trachea, and associated cartilage and a realistic K9 IV Trainer.

Rescue Critters! has made a custom K9 mannequin for University of California, Davis and Louisiana State University. It is a full-size intubation K9 mannequin with the K9 IV Trainer arm directly attached. For more information, contact Craig Jones at ABC Rescue, tel: (818) 780- 7860, e-mail: EMSCA@aol.com , WWW: http://members.aol.com/emsca/rc.html

VETLEX: EU Veterinary Legislation on CD-ROM

The VetLex system is a database available on CD-ROM allowing quick and easy access to the entire EU Veterinary Legislation in consolidated form. There are over 5,000 EU directives, regulations, decisions, and other legislation of interest to the veterinary profession. VetLex is word searchable, and daily updates can be accessed via the Internet. For ordering information, contact WWW: http://www.vetlex.com

MEETINGS

Innovation, Ethics, and Animal Welfare: Public Confidence in Science and Agriculture

November 18-19, 1999, at Te Papa Tongarewa, Museum of New Zealand, Wellington, New Zealand. For more information contact Mrs. Gill Sutherland, the Royal Society of NZ, P.O. Box 598, Wellington, New Zealand, tel: +64-4-4727421, fax: +64-4-4731841, e-mail: sutherland.g@rsnz.govt.nz

The welfare of animals is inextricably linked to their biological needs, our interpretation of those needs, and our expectations of animals, be they as sources of companionship, food, or recreation. Clearly, our knowledge and beliefs affect the way animals are treated, and these will change with future market requirements and consumer preferences. The past century has seen significant changes in the livestock sector, changes which seem set to escalate in the next century given the current developments in science and technology.

This conference plans to address how the application of knowledge has affected the welfare and productivity of farm animals during the past century and how it might affect the livestock industry in the future. *Farming Animals in 2020* is the focus of the first day of the conference jointly organized by the New Zealand Animal Welfare Advisory Committee (AWAC) and the New Zealand branch of the Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART). *Science and Trust* on the second day is planned to explain innovative technology, such as cloning and transplantation, in general lay terms and to consider how science and technology create ethical dilemmas, excitement, and fear and place obligations of trust on science, the media and regulatory authorities.

In addressing these issues in a timely and informative manner, the conference will be valuable to any one interested in the place of science and agriculture in the next millennium. It will be of special interest to those involved in the agricultural, scientific, and veterinary profession and to those interested in livestock production, animal welfare, the developing technologies, and their social regulation.

VIIth International Scientific Congress in Fur Animal Production

Organized by International Fur Animal Scientific Association (IFASA) and other associations, September 13-15, 2000, Kastoria, Macedonia, Greece. For more information, contact SYMVOLI - Congress Organizers Ltd., Patmou 8, Kalainaria, 551 33 Thessaloniki, Greece, tel: ++3031 425 159, fax: ++3031 425 169, e-mail: symvoli@yahoo.com

The scientific program will consist of plenary sessions, oral presentations, and posters. The papers will cover topics according to the five working groups of IFASA: breeding, reproduction and genetics; nutrition; pathology and diseases; behavior and welfare; fur properties. Titles and abstracts must be submitted by January 2000 and manuscripts by March 2000.

MEETINGS CO-SPONSORED BY SCAW

Toxicity Testing: Issues and Alternatives

November 9, 1999, National AALAS Meeting, Indianapolis, Indiana. Sponsored by Scientists Center for Animal Welfare (SCAW) and Working for Animals in Research, Drugs, and Surgery (WARDS).

Topics include alternative methods for skin desensitization testing, development and validation of alternative methods, regulations and guidelines, humane endpoints, and Test Smart high production chemicals.

Animal Research and IACUC Issues

December 6-7, 1999, San Antonio, Texas. Sponsored by The Scientists Center for Animal Welfare (SCAW), the University of Texas Health Science Center at San Antonio and the Office for Protection from Research Risks, NIH.

A two-day conference on Animal Research and IACUC Issues. The conference will be held at the Menger Hotel in San Antonio, TX.

For more information, contact SCAW, 7833 Walker Drive, Suite 410, Greenbelt, MD 20770-3229, tel: (301) 345-3500, fax: (301) 345-3503, e-mail: info@scaw.com, WWW: http://www.scaw.com

AVAILABLE ON THE WORLD WIDE WEB

AAALAC Global Gateway

http://www.aalac.org/html/global_gateway.html

The Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC) recently established one of the most complete international listings of animal care and use resources on the World Wide Web. The site provides hundreds of links to international resources and information.

AGRIS and CARIS Databases now on the Web

http://www.fao.org/agris/default32.htm

AGRIS is the international information system for the agricultural sciences and technology. The system identifies worldwide literature (both conventional and nonconventional; the so-called "gray" literature), dealing with all aspects of agriculture. CARIS is the Current Agricultural Research Information System, which identifies projects dealing with information on agriculture. The basic unit in CARIS is a set of data describing all the components of each single project.

Cambridge University Animal Welfare Information Centre (CUAWIC)

http://worldanimal.net/cambridge.html

CUAWIC in the United Kingdom has a large database of scientific reports and references. CUAWIC provides reference lists on particular animal welfare subjects and literature reviews with interpretation by experienced scientists. Minimum costs are charged for these services. Contact information; background material; and a list of CUAWIC reviews, reports and publications are available from the site.

The Department of Defense Biomedical Research Database

http://dticam.dtic.mil/dodbr/index.html

The Department of Defense (DoD) Biomedical Research Database has been developed from biomedical research, testing, or training programs being federally funded in FY97. The areas of research, testing, and training include, among others, the following: infectious diseases, biological hazards, toxicology, medical chemical defense, medical biological defense, clinical medicine, clinical surgery, physical protection, training, graduate medical education, and instruction. This information is updated on an annual basis at the beginning of the fiscal year.

European Society of Laboratory Animal Veterinarians (ESLAV)

http://homepages.iol.ie/~ivahq/eslav.htm

The European Society of Laboratory Animal Veterinarians (ESLAV) was created at the 6th FELASA symposium held in June 1996 in Basel, Switzerland. A main objective of the Society is to provide a forum for European veterinarians to discuss issues which concern them in the field of laboratory animal medicine and science, and to pool resources where appropriate.

Federation of Veterinarians of Europe

http://www.fve.org

The FVE web site contains information about the Federation, the veterinary profession in Europe (history, statistics), education (veterinary faculties, evaluation system), and FVE newsletters, press releases, position papers, and links to over 100 sites.

International Toxicity Estimates for Risk Database (ITER)

http://www.tera.org/iter/welcome.htm

ITER is a database of human health risk values and supporting information. This is a test version of a new ITER database expanded to 500 chemical files, with information from U.S. Environmental Protection Agency (EPA), Agency for Toxic Substances and Disease Registry (ATSDR), and Health Canada. Improvements to ITER include direct links to EPA's IRIS and to ATSDR's MRL page from each chemical file, and the ability to print reports.

Laboratory Animal Welfare Training Exchange (LAWTE)

http://www.lawte.org

The home page of this AALAS affiliate that promotes exchange of information among laboratory animal care trainers.

OSU Animal Science Extension Computer Software

http://www.ansi.okstate.edu/software/

Free downloadable software programs are available from the Oklahoma Cooperative Extension Service and the Oklahoma State University, Department of Animal Science for use by individuals. The programs include estimating feedlot cost of grain, spreadsheet for calculating livestock rations, diet planning for cattle and calves, checking nutrient balance, preconditioning weaned calves, inbreeding calculator, cross breeding simulations, and more.

Pain Management and Humane Endpoints Workshop Proceedings

http://altweb.jhsph.edu/science/meetings/pain/program.htm

Proceedings of a workshop held on November 2-3, 1998, by the Johns Hopkins Center for Alternatives to Animal Testing, NIH Office for Protection from Research Risks, NIH Office for Animal Care and Use, and the National Academy of Sciences Institute for Laboratory Animal Research.

Pig Health and Welfare News and Information http://www.pighealth.com

This site is managed by the Pig Disease Information Centre, Ltd., in the United Kingdom. Reports available in full text include Farrowing Without Crates, Growth Promoters: Alternatives, Organic Pig Production, Loose Sow Housing Problems: Silage Solution, and others.

Recognition and Management of Pesticide Poisonings

http://ace.orst.edu/info/nptn/rmpp.htm

This is the fifth edition (1999) of the Environmental Protection Agency manual by J. Routt Reigart and James R. Robers. Chapters include general principles, environmental and occupational history, insecticides, herbicides, other pesticides such as disinfectants, an index of signs and symptoms and an index of pesticide products.

Scientists Center for Animal Welfare: IACUC Talk

http://www.scaw.com/forum.html

The Scientists Center for Animal Welfare (SCAW) has a place on its web site called IACUC TALK for members of Institutional Animal Care and Use Committees (IACUC) to voice their opinions, questions, and concerns. The purpose of IACUC TALK is to provide a forum for members of IACUC's to discuss protocols, research animal well-being, and other issues.

Searching the Web for Mouse Models of Human Disease and Genetically Altered Mouse Strains

http://www.med.umich.edu/tamc/links.html#Search

The number of genetically engineered mice available for study is rapidly increasing. Considerable savings in animal life and research dollars are possible when existing transgenic or gene-targeted mouse strains can be used for experimental studies. In addition, investigators may find that a spontaneous mouse mutant may provide insight into their research questions. Unfortunately, there is no single comprehensive repository for all genetically altered mice. Dr. Thom Saunders, Transgenic Animal Model Core, University of Michigan Medical School has listed vendors that have mice for sale. In addition, there are information databases which describe mouse models.

Spanish Society for Laboratory Animal Science

http://www.secal.es

The Spanish Society for Laboratory Animals Science (SECAL) announces that an important article on Recommendations for Euthanasia of Experimental Animals, has been translated by SECAL into Spanish from their original English content as published in Laboratory Animals. Copies of this reprint are available free of charge. It is also available on the SECAL web site.

La Sociedad Española para las Ciencias del Animal de Laboratorio (SECAL) anuncia, que ha traducido al Español un importante articulo sobre Recomendaciones para la Eutanasia de Animales de Experimentación, a partir de su original en Ingles contenido en la revista Laboratory Animals. Las copias impresas se encuentran disponibles gratuitamente. Tainbien se encuentra disponible en la pagina de Internet de la SECAL. Este proyecto ha sido patrocinado por Laboratory Animal, Ltd.

Swiss Animal Welfare Legislation

http://www.admin.ch/bvet/0_navigation-e/0_index.html

This site contains the Swiss Federal Act on Animal Protection of March 9, 1978, and the Swiss Animal Protection Ordinance of May 27, 1981. These documents are available in English, German, French, and Italian.

Tufts Animal Care and Condition Scales

http://www.tufts.edu/vet/cfa/tacc.html

The Tufts Animal Care and Condition Scales were developed in 1997 by Dr. Gary Patronek, the Fort Wayne Department of Animal Care and Control, and the law enforcement division of

the Massachusetts Society for the Prevention of Cruelty to Animals to help cruelty investigators and veterinarians assess cases of animal abuse or neglect that are primarily related to husbandry, as opposed to deliberate acts of cruelty.

USDA, ARS Website on Animal Health and Well-being

http://www.ars.usda.gov/is/np/ha

The U.S. Department of Agriculture, Agricultural Research Service (ARS) has a new website that pulls together previously issued ARS news stories, articles in Agricultural Research magazine, and other ARS sources about animal health and well-being, aquaculture, and arthropod pests (as related to animal issues). The site will also provide resource and contact information relevant to ARS animal health research.

USDA, APHIS Animal Regulations Library

http://www.aphis.usda.gov/guidance/regulations/animal

U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS) has an online library of U.S. state animal regulations, international animal regulations, and international animal product regulations. All documents are in Adobe pdf fornat.

U.S. State and Territory Animal Import Regulations

http://www.aphis.usda.gov/vs/sregs

The latest regulations on the interstate movement of animals. The files are presented by USDA, APHIS, Veterinary Services but are written and maintained by each State.

Virginia-Maryland Regional College of Veterinary Medicine program on plant poisonings in livestock and pets in the Mid-Atlantic region.

http://education.vetmed.vt.edu/Curriculum/VM8424/toxicplants/index.html

Includes color pictures of common, important poisonous plants in the Mid-Atlantic region; identification features of each plant, with reference to the most toxic parts; conditions under which poisoning is most likely to occur; and an outline of the disease caused by ingesting the plant.

WEB SEARCH ENGINES

Dogpile

http://www.dogpile.com

Submits your query to multiple search engines instead of just one.

The Medical Journal Finder

http://mjf.de/MJF/MJF/home.html

Find journals alphabetically or use the search engine.

Grants...

• ACLAM Foundation Grant Awards

Here are the 1999 American College of Laboratory Animal Medicine Foundation grant awards.

"Effects of Social Environment on Behavioral and Physiological Indices of Surgical Stress" submitted by A. Courtney DeVries, Ph.D., Johns Hopkins University School of Medicine.

"Pharmacokinetics and Pharmacodynamics of Intrathecal Morphine in Calves Undergoing Thoracotomy for Ventricular Assist Device Placement" submitted by Gwendolyn L. Carroll, D.V.M., M.S., Texas A&M University.

To submit a grant for consideration in 2000, the deadline is February 2, 2000. Contact morinasc@skipjack.bluecrab.org. More information about the grant is available from the ACLAM homepage http://www.aclam.org

• American Quarter Horse Association (AQHA) Funding for Equine Research

What type of equine research does AQHA support?

In developing guidelines which reflect the major topics of concern to horsemen, AQHA conducted a survey of its membership and in 1986, the AQHA Research Committee released its Research Priority List.

AQHA Research Priority List

1. The diagnosis and treatment of acute gastrointestinal disorders, such as colic.
2. The diagnosis and treatment of musculoskeletal defects of nutritional origin, such as O.C.D., epiphysitis, etc.
3. The diagnosis and treatment of reproductive disorders, such as endometritis.
4. The immunization of foals.
5. The diagnosis and treatment of infectious diseases of the gastrointestinal tract, such as Potomac Fever, salmonella, etc.
6. The diagnosis and treatment of respiratory diseases such as "bleeding", pneumonia, etc.

Obtaining an AQHA Research Grant

Interested colleges or universities with annual or ongoing equine research programs may apply to the American Quarter Horse Association for research funding for any planned or continuing equine research project. Formal application by the institution must be submitted to AQHA before January 1, in a Grant Application form provided by AQHA. The AQHA Equine Research Committee will then review all requests for funding during the AQHA Annual Convention in March. Approval for funding of applicable projects will be granted after a site visit by members of the AQHA Research Committee, on their recommendation to and final approval by the AQHA Executive Committee.

Complete information regarding all application procedures is contained in the Grant Application form provided by AQHA. On final approval for research funding, the university will enter a "Memorandum of Agreement" with AQHA, detailing the payment of funds and all considerations applicable to the research project and the results of the study. For more information contact AQHA, P.O. Box 200, Amarillo, TX 79168, WWW: http://www.aqha.org.

• The Winn Feline Foundation

The Winn Feline Foundation is a nonprofit organization affiliated with The Cat Fanciers' Association, Inc., which supports research into medical problems affecting cats. The Winn Feline Foundation makes funds up to $15,000 available each year for such studies. Funded study areas include altering, analgesia, anesthesia, asthma, bacterial disease, diabetes, and many others. For more information, contact The Winn Feline Foundation, 1805 Atlantic Ave., PO Box 1005, Manasquan, NJ 08736-0805, tel: (732) 528-9797, fax: (732) 528-7391, WWW: http://www.cfainc.org.

Animal Welfare

Special Issue on *Genetics and Animal Welfare*

(Guest editors: Professor L.F.M. van Zutphen, Utrecht University, The Netherlands; and Professor P. G.C. Bedford, The Royal Veterinary College, UK)

The November 1999 issue of *Animal Welfare* will be published as a Special Issue, devoted to the topical subject of Genetics and Animal Welfare. It promises to be a memorable and stimulating publication, with submissions covering issues ranging from the welfare implications of extreme breed types in farm and companion animals, to the effects of strain on the behavior of poultry and laboratory animals; the practical and ethical implications of advances in genetic technologies are also well discussed in a range of authoritative and thought-provoking papers. The worldwide list of contributors includes M. Appleby, R.B. Jones, P.D. McGreevy, C.M. Nevison, and G. Varner.

Animal Welfare (ISSN 0962-7288) has established itself as the objective, international forum for quarterly publication of peer-reviewed papers on all aspects of farm, laboratory, zoo, wild and companion animal welfare science. It ranks among the top 25 percent of all veterinary/ zoological journals covered by the *Science Citation Index*- attesting to the quality and impact of its contents.

Individual copies of the Special Issue from Universities Federation for Animal Welfare are priced at £I5.00/US$30.00.

To order the Special Issue, please contact: Universities Federation for Animal Welfare, The Old School, Brewhouse Hill, Wheathampstead, Herts AL4 8AN, UK, phone: +(0)1582 831818, fax: +(0)1582 831414, e-mail: ufaw@ufaw.org.uk for further details.

United States Department of Agriculture
Agricultural Research Service
National Agricultural Library
AWIC Bulletin Staff
10301 Baltimore Ave.
Beltsville, MD 20705-2351

OFFICIAL BUSINESS
Penalty for Private Use, $300
ANIMAL WELFARE INFORMATION CENTER BULLETIN
ISSN 1522-7553

BULK RATE

POSTAGE AND FEES PAID

USDA

PERMIT NO. G95

If changes are required to your mailing address, enter them on the label and return it or a copy of it to the above address. If you wish to be removed from the mailing list for this publication check here ____ and return this page or a copy of it to the above address.

Animal Welfare Information Center Bulletin
(ISSN 1522-7553)
is published quarterly and distributed free of charge by the National Agricultural Library. The Animal Welfare Information Center Bulletin provides current information on animal welfare to investigators, technicians, administrators, exhibitors, and the public. Mention of commercial enterprises or brand names does not constitute endorsement or imply preference by the U.S. Department of Agriculture. Articles appearing in this bulletin do not necessarily represent positions or policies of the U.S. Department of Agriculture or any agency thereof. Unless otherwise stated, contents are not copyrighted and may be reprinted freely. For noncopyrighted articles, mention of source will be appreciated but is not required

Tim Allen, Editor
D'Anna Jensen, Production and Layout
Michael Kreger, Assistant Editor
Website http://www.nal.usda.gov/awic